



Network security
Protecting corporate assets.
See page 43



Contact managers
Four Windows products make sales easier. See page 59

NOVEMBER 23, 1992

THE VOICE OF PERSONAL COMPUTING IN THE ENTERPRISE

VOLUME 14, ISSUE 47

Closer ties with vendors key to '90s IS

BY TOM QUINLAN

In the '90s, IS managers are being challenged to use technology to produce better products and profits while struggling with corporate cutbacks.

That was the consensus in a survey of IS divisions of 13 "bleeding edge" companies. The survey, which sought to determine how IS departments are deploying technology, was conducted by Taligent Inc. of Cupertino, Calif.

The Travelers insurance group, a survey participant, said it has been making technology part of its basic product "because for an insurance company, information is our product," said Roy Augsberger, Travelers' director of new technologies.

"It's becoming more important to us though, because throughout the company we're losing 5,000 positions," Augsberger said. "And we're counting on new technologies and new ways of using technology to

See IS, page 96

Mobile computing big at Comdex

Vendors heed call with devices that let users connect to LANs directly

BY CHERYL GERBER
AND YVONNE LEE

LAS VEGAS — Wireless technology seemed to be everywhere at Comdex last week, as hardware and software vendors legitimized the mobile market with integrated telephone, radio, and computer capabilities in small mobile devices.

Among those who debuted wireless solutions were AT&T, IBM, Motorola, and the Cellular Digital Packet Data (CDPD) group, a coalition of the leading cellular carriers who likely will become the foundation of future wireless integration. Motorola demonstrated its commitment when CEO George Fisher flashed an unannounced wireless networked pen computer.

Wireless vendors say the challenge of making commercial products attractive is to develop technology that allows the mobile user to connect directly into the LAN, whether or not the server identifies the user.

To respond, vendors need to



Motorola CEO George Fisher gives a quick preview of a wireless networked pen computer to be introduced early next year.

build a mobile interface to let users do guest docking to a network or to other mobile platforms.

"If I'm a wireless user with a wireless network, I should be able to walk into an office and seamlessly connect into the network without having to go through some elaborate procedure with a LAN administrator to set me up and identify me to

the server," said Deborah Triant, president and CEO of Sitka.

Sitka currently offers mobile peer-to-peer networking solutions via its Pen Central and PenTops products that enable a user to connect to a node on a Novell LAN or LAN Manager network without having been a known participant.

See MOBILE, page 96

Pen systems to offer direct NetWare link

BY SHAWN WILLET

In a twist on the concept of "portable NetWare," pen software vendors are quietly working with Novell Inc. and wireless network providers to make their devices mobile clients on NetWare LANs.

Go Corp., Microsoft Corp., and Grid Systems Corp. are working on putting Novell's IPX/SPX protocol stack on their pen operating systems, according to representatives from the three firms.

The companies are also developing special interfaces to wireless WAN systems such as RAM Mobile Data's and Ardis.

See PEN, page 96

Taligent's 'bleeding edge' companies*

- Bechtel
- Boeing
- Bristol-Meyers Squibb
- Brooklyn Union Gas
- Citibank
- Clorox
- Esprit de corps
- Marriott
- MCI
- Procter & Gamble
- The Travelers
- Union Pacific

*One participant declined to be identified.

Local bus begins to replace high-speed I/O bus design

BY GATE CORCORAN
AND TOM QUINLAN

LAS VEGAS — Long thought of primarily as a means to faster graphics, local bus architectures are being designed to replace high-speed I/O buses.

While Intel Corp. officially maintains that its PCI (Peripheral Component Interconnect) local bus specification is a supplement to existing I/O buses, the company is promising systems manufacturers that they will be

able to use it in place of high-speed buses such as EISA, Micro Channel, and Digital Equipment Corp.'s TurboChannel, sources said.

DEC is the first systems maker to publicly commit to PCI. At Comdex last week, the company revealed that its first Alpha-based PCs — due as soon as Windows NT ships — will use the PCI bus as well as the EISA bus.

In future models, PCI will handle all the system I/O requirements, and the company will use TurboChannel only if there's an overwhelming demand for it, said Stephen D. Severson, Windows NT product manager for DEC.

"Intel's PCI standard is designed to handle all of the I/O requirements of a system," Severson said.

See BUS, page 98

Novell leads effort in support of FTC case

Hired antitrust law firm to assist FTC

BY DOUG BARNEY
AND STUART J. JOHNSTON

LAS VEGAS — Novell Inc. has emerged as the leader of a legal assault against Microsoft Corp. over alleged anticompetitive practices.

The networking giant recently hired the Washington law firm of Albondi & Foster to recruit expert witnesses for a potential Federal Trade Commission action against Microsoft, and it is seeking help from other companies, according to several sources in the legal and software communities interviewed here.

Meanwhile, the CEO of a Microsoft competitor said last

week that he was approached by Novell to join in a potential independent antitrust suit against Microsoft.

A partner at Albondi & Foster, which specializes in antitrust and competition law, and a Novell representative both refused to comment.

The law firm's involvement in a possible friend-of-the-court filing surfaced last week. (See "Law firm hired to bolster FTC's case," November 16, page 1.)

While details of Novell's plans remain unclear, observers said any antitrust suit against Microsoft is likely to include complaints about its behavior

See FTC, page 96

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FIFTH GENERATION SYSTEMS, INC.

NEWS

Adobe's Acrobat promises move to paperless office

BY JEANETTE BORZO

LAS VEGAS — Adobe Systems Inc.'s vision of a paperless corporate environment moved closer to reality last week at Comdex, as the company officially rolled out Acrobat, a project that has been in development for more than a year under the code-name Carousel.

Acrobat is due to enter beta testing by year end and should ship in the first half of 1993.

In essence, the technology lets users transfer digital documents among their Windows, Macintosh, DOS, and Unix computers without a significant loss of fonts or formatting.

ASCII — today's universal text interchange format — can butcher a document's layout, graphics, and fonts, which Acrobat's Portable Document Format (PDF) maintains.

The PDF Writer and Viewer (see chart) will sell together for between \$100 and \$200. Hardware and software partners also may bundle the technology with their products, Adobe said.

The Distiller for Macintosh and Windows is also due out in the first half of 1993. Pricing has not been set, but Adobe said it expects to offer special pricing for a network version.

Next year, Adobe plans to ship a publishers' toolkit that will add support for standard generalized markup language (SGML), text search capabilities, and OCR import options. A

Adobe Acrobat

A cross-platform file format called the Portable Document Format (PDF) is at the heart of Adobe Acrobat.

• **Acrobat PDF Writer** — a printer driver lets applications produce PDF files.

• **Acrobat PDF Viewer** — a software application that lets users read, navigate, and print PDF documents.

• **Acrobat PDF Distiller** — a software application that translates PostScript language files into PDF. The Distiller will also let users of Unix and DOS — where print drivers do not exist — create PDF files.

third stage of development, expected in 1994, will expand the PDF format to include audio and video files.

Adobe rattled off a variety of statistics on paper consumption to make its argument for Acrobat. For instance, business documents are each copied an average of 19 times.

"If you follow this curve, you simply run out of trees," said John Warnock, Adobe chairman and chief executive officer. "Using our digital highways is the only solution we have."

The Acrobat technology lets users transfer documents over a network, modem, or on diskette rather than printing documents only to subsequently mail or fax them.

Analysts said Acrobat could

significantly boost a corporation's productivity and bottom line.

"If it is as good as promised, it will have a tremendous impact," said Jonathan Seybold, president of Seybold Publications Inc., in Malibu, Calif. His company could, for instance, distribute newsletters and conference materials electronically. "It's far more effective than printing and sending," Seybold said.

"Acrobat is a '90s version of paper," said Rob Auster, vice president of electronic printing at B.S. Strategic Decisions, in Norwell, Mass. "PC managers are going to be the champion of making the corporation more efficient [by embracing the technology]."

"The approach allows the LAN manager to make sure the server won't acknowledge any client without an encrypted NCP packet," Neuman said. To phase in the add-on, Novell has an option to allow a server to acknowledge encrypted and nonencrypted client packets.

The code set for NetWare 3.11 went out last week over CompuServe and General Electric Co.'s bulletin board. A NetWare 2.x fix is due by year end, with one for NetWare 4.0 slated for early 1993.

performance drop of less than 2 percent for small LANs, it could be more than 10 percent on networks of more than 100 users. Despite the performance hits, some users seem willing to make the trade-off.

"Certainly many customers, primarily banks and primarily in Europe, were demanding we take action on this," Neuman said.

The fix is based on encryption technology from RSA Inc. and adds randomly generated access codes to NetWare client log-ons. It is composed of three components: a server-based NetWare Loadable Module, a new client (nets) shell, and enhanced utilities for Novell's NetWare Core Protocol (NCP).

AT DEADLINE

Quattro Pro add-in helps to integrate programs

Borland International Inc. is developing an add-in toolkit that will allow corporate developers to create programs that talk directly to the "objects" that form Quattro Pro for Windows.

The unannounced toolkit is currently being used by a handful of developers and corporations but is not yet in beta testing. The kit includes documentation and sample object components. Corporations can use any programming tool that can create Dynamic Link Libraries with the toolkit. No price or ship date has been set.

— Doug Barney

Software lets 286s run Windows

Citrix Systems Inc. last week announced a program that provides Windows for multiple concurrent users, including those using 286-based systems. Wincredible lets users connect locally over LAN and serial connections or remotely over a dial-in modem. Microsoft officials said they may implement a version that works with Windows NT. Citrix said the program permits remote users with 286-based systems to run Windows 3.1 applications with acceptable speed and performance.

— Ed Scannell

Subnotebook recharges itself

Lexmark International Inc. demonstrated a subnotebook that it claims has a self-charging battery. The 3.6-pound computer uses a dry-cell battery, similar to a car battery, that recharges while the computer is in use and needs no cables or adapters, the company said. It runs on a 25-MHz Cyrix 486SLC microprocessor and has a floppy drive, PCMCIA slot, and the customer's choice of an 85- or 170-megabyte hard drive. The system's 3.3-volt architecture provides a battery life of 8 to 10 hours, according to the company.

The subnotebook will be available in April for approximately \$2,000, said William Summers, program manager for input technologies. Lexmark would not name the reseller.

— Yvonne Lee

Antiviral tool for NetWare servers

Fifth Generation Systems announced Untouchable Network NLM, an antiviral package that the company says detects and recovers known and unknown viruses for NetWare 386-based servers. Fifth Generation said Untouchable Network NLM uses integrity checking on the file server to detect known and unknown viruses without relying on frequent virus signature updates. The package guarantees 100 percent safe restoration of recoverable infected files.

Fifth Generation officials said Untouchable will be available by the end of December and will carry a suggested retail price of \$995 per server. Fifth Generation can be reached by calling (504) 291-7221.

— Jim Hammett

Vendors throw support behind NT

Microsoft showed off third-party Windows NT applications at Comdex last week. The applications, which included development and engineering tools, were shown by Easel Corp., Intersolv Inc., Micro Focus, Mozart, Neuron Data, and Texas Instruments Inc. Connectivity software vendors included Wall Data, Digital Equipment Corp., Eicon Technology, and Software Ventures. Database vendors Ingres and Oracle Corp. also showed 32-bit NT versions.

In addition, more than 35 hardware OEMs and third-party hardware vendors demonstrated 40 devices, including systems, that support the coming operating system.

Among the hardware systems shown were nine symmetrical multiprocessor computers from Acer America Corp., Advanced Logic Research, AST Computers, Compaq Computer Corp., Wyse, Tricord, NCR Corp., and Sequent.

— Stuart J. Johnston

Novell makes security fix on NetWare

Encryption feature expected to slow larger networks

BY VANCE MCCARTHY

Novell Inc. released last week a free security fix for NetWare 3.11, less than two months after computer hackers in Europe cracked a NetWare LAN undetected.

Novell engineers have been working to beef up NetWare security after programmers at Leiden University in the Netherlands found a way to access LAN connections undetected.

However, there may be drawbacks to deployment of the security suite. "Performance declines as the networks get larger," said Jan Neuman, general manager of the NetWare systems group.

Although Novell found a



Distributed Thinking / Stewart Also

Comdex breaks hardware habit and shows off exciting software

Comdex this year exhibited a level of positive energy that I haven't seen in several years.

One intriguing twist on the show is that there were a fair number of interesting new products being demonstrated. Over the last three years, Comdex had been an OEM-oriented hardware show, where you could see the newest generation of machines based on the latest Intel microprocessor. This year, there was a remarkable array of interesting new software products, mostly hiding in the booths of platform vendors (Microsoft, IBM, Apple, Commodore, etc.). Of course, these companies want you to think theirs is the coolest platform for new applications.

Microsoft's Windows booths were impressive, with more than 250 software developers showing their wares. (This setup also gave little software companies who want to show something at Comdex a great alternative to dealing with the Interface Group and being relegated to a remote site.)

I liked WinNet Plus (Cogent Data Technologies, [800] 426-4368) for bring-

ing together the resources of different networks and hiding all the different protocol information. With this protocol installed, you can deal with the protocol management from a single Windows control panel, and the software automatically maintains your drive maps and other details.

I also liked E-Mail Connection (Connect Software, [800] 234-9497), a pro-

your messages.

I didn't get a full demo so I can't assure you that it works, but the idea is like having your very own personal messaging server. And it would replace a mess of software for people who are on networks that don't have server-based gateways.

Lastly, a fellow from Wyvern Technologies ([800] 265-4386 in Ottawa)

phone Wires for plugging modems into telephone jacks in different countries. (See Distributed Thinking, November 2, page 4.) One reader mentioned two companies, which I pass along here. The Complete Portable ([800] 328-4827) is supposed to sell telephone wires with RJ-11 on one end and the correct plug on the other for \$15 each, but the company failed to send him a catalog as promised. TeleAdapt, in England (011-44-81-429-0479), appears to be a reseller for Computer Products Plus (vendor of the infamous Road Warrior kit for aggressively mobile notebook users). The company also sells the wires in various packages for different regions of the world.

Findata Systems of Portland, Ore. ([503] 292-4271), offered its own products as a solution. Findata's letter says it can sell any wire for between \$17.50 and \$30, as well as other convenience products.

All of these vendors sell individual wires, so they don't technically qualify in my search for a single product—but I have heard rumors that a company that sells custom modems for systems manufacturers may be working on just such a product. More later.

There was a remarkable array of interesting new software products, mostly hiding in the booths of platform vendors.

gram for integrating your network mail and your remote mail services in a single interface on your computer. If you have a Microsoft Mail or MHS server on your network and you maintain accounts on MCI Mail and/or CompuServe (support for more services will come later), E-Mail Connection will manage all of your messages and let you set up and maintain automatic collection and delivery of

came running after me to say that he had the best object-oriented development environment in the world, far better than Dialogic or ParcPlace. But I never did get back to his booth to see if he was telling tales or not.

MORE TRAVELERS' AID

Hydra Wires: I've had several responses about vendors that sell Hydra Tele-

NEWS

Microsoft sets off database price war by cutting FoxPro 2.5 and Access prices by \$200.....**6**

Big Blue gives first public demo of its upcoming hand-helds at Comdex.....**6**

Users doubt multimedia will break through with Video for Windows.....**9**

IBM licenses its line of BIOS products to Phoenix Technologies.....**9**

IDAPI group gains more support but offers few specifics.....**12**

Phone companies and major customers finally come through with ISDN plan.....**12**

SOFTWARE

Microsoft delivers on promise of systemwide scripting with OLE 2.0.....**15**

Metaphor's DIS can now access SQL Server, Red Brick databases.....**15**

Lotus demos pre-release version of 1-2-3 for Windows, Release 2.0.....**15**

Squeeze play: Telephoto offers a JPEG utility to reduce the file size of compressed images.....**18**

Slate offers suite of Grid applications at a 50 percent markdown.....**18**

SoapBox gives you the tools you need for writing, calling, or faxing your congressperson.....**16**

HARDWARE

You can take it with you: Portables dominate Comdex introductions.....**24**

Vendors line up accelerator boards that utilize digital signal processor chips that speed applications.....**24**

Sleep with your notebook on: Lexmark, C&T develop MiniBooks with 40-hour battery life.....**24**

Seagate, Oki announce ventures into portable disk market.....**28**

Low rollers: Printer makers target low end and network needs at Comdex.....**28**

Corollary updates its multiprocessing technology for Windows NT.....**28**

NETWORKING

Vendors pledge to give users more centralized, robust control of LANs.....**31**

Z-Code zinger: Z-Mell for Unix is coming to PCs and Macintoshes.....**31**

WordPerfect 5.2 will include a free module for users to access DEC e-mail links.....**31**

Viewz 2.2 allows WordPerfect for Windows users to manage documents across LANs without leaving app.....**34**

LAN Admin automates many tasks on LAN Manager networks.....**35**

ENTERPRISE COMPUTING

LAN security has become more vital now that more mission-critical applications are kept on networks.....**43**

MANAGEMENT

Stone Container attempts to contain the tide of internal software piracy with stringent standards.....**48**

The Model T as model: Evanston Hospital uses just-in-time theory from Henry Ford's time to keep inventory streamlined, Alice LaPlante finds.....**52**

REVIEWS

PRODUCT COMPARISON

We test four contact managers that have moved into Windows.....**59**

REVIEWS

CADKey 5.02.....**72**

CA-Cricket Paint for Windows.....**75**

TEST DRIVES

WinSleuth Gold 3.0.....**97**

COLUMNS

Window Manager / Brian Livingston.....**22**

Tech Talk / Steve Gibson.....**29**

LAN Talk / Paul Merenbloom.....**36**

To the Editor.....**38**

From the Editor / Ed Foster.....**39**

Peer to Peer / Dennis Koenig.....**39**

From the Editor / Bob Metcalfe.....**40**

How to Contact / Cheryl Currid.....**40**

New Age IS / Cheryl Currid.....**57**

Buyers Advisory / Brett Glass.....**70**

First Look / Kevin Strehle.....**87**

One on One / Umang Gupta.....**98**

Notes From the Field / Robert X. Cringely.....**98**

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Microsoft launches first shot in database price war

By Doug Barney

LAS VEGAS — Microsoft Corp. set off a database price war last week at Comdex by announcing a \$200 price cut on FoxPro 2.5 and Access.

Pricing for the yet to be released FoxPro and for Access was reduced to \$495. Access, now shipping, was formally

announced at Comdex and is being offered at an introductory price of \$99 until the end of January. Microsoft is also offering competitive upgrades for all PC database users for \$199.

Borland International Inc. officials said the company will join the fight, although the company gave no new pricing strategy at the show. Currently,

Paradox 4.0 for DOS lists for \$795.

"There seems to be a price war [in database management], and Borland is committed, whatever it takes, to be the leader in database management," said Philippe Kahn, Borland president and chief executive officer.

Kahn and Doug Antone, senior vice president of worldwide sales at Borland,

said the company has fought price wars before. "If Microsoft wants to play that [price war], we're very willing, capable, and able," Antone said.

Users welcomed the news of the price cuts.

"This will make me very happy," said Don Truhill, manager of US Sprint, in Rancho Cordova, Calif. Truhill's organization has made the jump from Borland's dBase to FoxPro. With the previously high list prices for both, it was an expensive proposition.

Although quality will still be the top priority in selecting a database, Lou Holtmann, vice president of Guarantee Air Freight, in St. Louis, said lower prices might allow the company to provide database software to more users.

FoxPro 2.5 will be ready for manufacturing in December and will be available early in the first quarter of 1993, Microsoft officials said.

Microsoft officials said the aggressive PC database pricing would help expand what they have called a sluggish database market. According to Microsoft officials, the percentage of desktop PC users that have databases installed has gone down in the last several years. Difficult interfaces and suggested prices as high as \$795 have held back use, they said.

"Prices of \$795 or so are okay for a developer, but it is not a price for end-users," said Charles Stevens, general manager for database products for Microsoft. People expect productivity applications to sell for \$495, Stevens added.

— Stuart J. Johnston and Scott Mace contributed to this story.

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Borland will do whatever it takes to be the leader in database management, according to president and CEO Philippe Kahn.

Corrections

In the November 16 review of PC Tools 8.0 (page 136), the phone number is incorrect. Central Point can be reached at (800) 445-4208.

The phone number for Envisions in the November 16 story, "Fujitsu, Mustek, Envisions to show scanners" (page 40), is incorrect. The company can be reached at (800) 365-7226.

A pipeline item in the November 9 issue, page 37, incorrectly identified the MacinStore SpeedArray Wide disk array. The array is from Storage Dimensions. Base price for the system starts at \$14,299.

A PC IS A TERRIBLE THING TO WASTE.

IBM PS/2 Models 70 & 80 and Compaq Deskpro 386 systems have a future with 486/Now! processor upgrades.

Every year or so, a new version of your favorite software comes out. Ideally, the updated version is easier to use, has new features and hopefully makes you more efficient. To get the most from these improvements, you need 486 processing power. Until now, your only solution was to buy a whole new system. In addition to the cost, this meant re-installing software and buying new peripherals.

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Comparison of native Compaq Deskpro 386/20c and same system with 486/Now! 486DX-33MHz Landmark Speed Test 2.02. Comparison of native IBM PS/2 Model 50 and same system with SX/Now! 386SX-33MHz Landmark Speed Test 2.03. All trademarks are of their respective owners.



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This One



409N-TET-8H1L

IBM weighs in with its own personal digital assistant

Also demonstrates clock-tripling 486 chip

By Ed Scannell

LAS VEGAS — IBM pulled back the curtain last week to give Comdex attendees a preview of unreleased hand-held and portable systems.

Big Blue's unnamed hand-held unit, due in late 1993 or 1994, is based on an "8086-like" chip, but the final selection of a processor has not been made.

The 1-pound, pen-based system has a monochrome CGA-quality display, a 2,400-bit-per-second (bps) modem, a 4,800-bps fax, and cellular communications technology and accepts various PCMCIA cards.

A collection of programs is built into the unit, including a calendar, an address book, and a small database that users can cut and paste data to and from.

Users can also download information from a variety of informational services, including financial information from

Dow Jones and weather reports. They can then cut and paste that data into programs resident in the device.

While IBM demonstrated only a low-end version primarily designed for sending and receiving information, company officials said they are working on two higher end classes of systems.

A second system will have a CD ROM drive capable of downloading and processing larger amounts of data. The third system will handle even larger amounts of data and let users generate new data locally.

"This [third] system is for more compute-intensive applications with local computation abilities to create new data," said Bob Carberry, assistant general manager of technology for IBM's Personal Systems line of business.

IBM hopes to generate more significant revenues from the

informational services it plans to provide than from the system hardware.

In addition, IBM showed off a unit that is a 486-based hybrid of a notebook system and digitizer tablet. Users can mount it on a stand and plug in a keyboard for desktop use, or detach it and carry it around.

Tentatively called the New Concept Workstation, this system supports pen input and can display in either portrait or landscape mode.

In addition, IBM showed off a 7.6-pound system based on its Think Pad 700C equipped with a cellular phone.

Also publicly demonstrated



Bob Carberry: IBM's higher end hand-held system is for compute-intensive applications.

for the first time was IBM's 486 clock-tripling chip, which hits the 100-MHz mark. Co-developed with Intel Corp., the chip has a 32-bit bus interface and a 16K cache controller. The chip—code-named Blue Lightning—is expected to be available in either an IBM or an OEM system early next year.

Buyers not ready for multimedia

By Kelley Damore

LAS VEGAS — Even Microsoft Corp. can't force a market to materialize overnight.

Some industry watchers expected Microsoft's recently announced Video for Windows to help legitimize the multimedia market. But the consensus at Comdex last week among users dazzled by an array of multimedia demonstrations was that most of these applications will not be incorporated into the business environment for at least two years.

Business constraints such as downsizing and cost justification seem to be major obstacles to multimedia's acceptance.

"For me, the real issue is getting resources into Windows," said Merrill Feldman, director of information systems for Cattelus Development Corp., in San Francisco. "If we incorporate multimedia applications then we also need people to support them. Right now we are downsizing and can't justify how video affects management's bottom line," Feldman said.

"Do I want to spend the extra money [for users] to look at each other's pictures on E-mail? For the average business person, I see a need for it," said David Black, manager of finance and administration for Walt Disney Pictures and Television, in Burbank, Calif.

"We constantly need more RAM and disk space for our existing applications," Black added. "It would be hard to justify more RAM and hard disks for video and sound."

"Video for Windows as a product sounds interesting, but you still need a lot of extra equipment, and that's too expensive," said Jack Martinez of Novitas, in Omaha, Neb.

Others blamed deficiencies in hardware and networking for multimedia's slow acceptance. Bert Nelson, a systems analyst with Salsburg Corp. of Landover, Md., said he will adopt multimedia when vendors increase the data compression, the optical backbone, and the networking bandwidth.

"Once the hardware technology is fast enough, multimedia will take off," said Mike Klingens, president of APCS Software International, in Scottsdale, Ariz. "It is much easier to describe a concept with a picture."

"It will be a while before corporate America knows how to use multimedia," said Mike Klingens. "Education is the first market, but we will see it in the corporate marketplace a few years down the road."

IBM demos energy-saving desktop prototype for '93

By Ed Scannell

LAS VEGAS — IBM demonstrated at Comdex last week an energy-efficient desktop system in a recyclable casing that the company plans to bring out in early 1993.

Referred to as the Energy Desktop prototype, the 486-based machine requires less than 50 watts to operate in full, active mode and only 16 watts in sleep mode. The system costs about \$15 a year to run continuously, compared to \$150 to \$200 for most comparable desktop systems, IBM officials said.

The Energy Desktop meets the Environmental Protection Agency's Energy Star program specifications and will carry that program's logo.

"In doing research for developing this machine, we discovered other features that were as important to users as low power," said James Turpin, program manager of premium systems for the IBM Personal Computer Co.

The 25/50-MHz 486SLC2-based system measures 12 inches by 12 inches by 2 1/2 inches. It can be wall-mounted to save desktop space and is fanless, generating no noise.

The system has four PCMCIA slots to accommodate a variety of add-on cards for memory, Token Ring and Eth-



ernet communications, fax and modem capabilities, and 3270 emulation.

It was demonstrated last week with a 10-inch color display but will also be offered with a CRT, the company said.

Many of the Energy Desktop's technical and design features will be integrated into IBM's Personal Systems/2 products over the next year or two, the company said.

The system, which will come with some undetermined PCMCIA cards, works with both Micro Channel and PC/AT-bus technologies, IBM said.

IBM officials said pricing has yet to be determined.

— Jayne Wilson contributed to this report.

Clone makers to get IBM's full line of BIOS

IBM licenses products to Phoenix

By Ed Scannell

In yet another move to bolster its PC revenues, IBM has licensed its complete line of BIOS products to Phoenix Technologies Ltd.

The agreement allows clone makers to create systems that are 100 percent compatible with IBM's Micro Channel and PC AT bus machines.

It will give IBM a steady stream of royalties from clone makers on every machine that uses its BIOS products.

"This is a move that takes us one more step toward our goal of being a significant player in the OEM marketplace," said Nobu Mii, vice president and general manager of IBM's entry systems technology division.

The agreement also sets the stage for the two companies to jointly craft a series of BIOS products for IBM's future line of systems. The first of these systems is likely to be IBM's Green PC, an energy-efficient system formally announced last week. The system is expected to be delivered in the first quarter of 1993.

In 1984 Phoenix became the first company to reverse-engineer the IBM Personal Comput-

er's ROM BIOS. It sold the product to dozens of companies so they could create systems 100 percent compatible with IBM's, thereby helping launch the multi-billion-dollar clone industry.

BIOS is the system-level software layer that tightly integrates a hardware system with its operating system and applications.

Among Phoenix's 200 customers are Packard-Bell, Tandy Corp., NEC, and several overseas clone makers such as Matsushita.

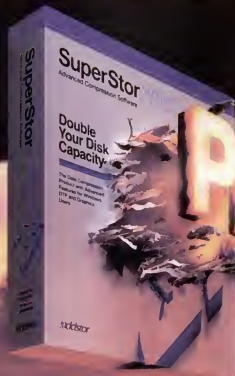
Phoenix officials refused to say when or if any of these OEMs would produce systems using IBM's line of BIOS products.

The IBM-compatible BIOS line, however, should help more clone makers come to market significantly faster, according to executives from both companies.

IBM's suite of BIOS includes CBIOS for ISA compatibility, ABIOS for Micro Channel compatibility, and VGA video BIOS. Phoenix has also licensed IBM's XGA BIOS.

Phoenix will incorporate various changes to IBM's BIOS line, making it compatible with a wider variety of best-selling chip sets, officials said.

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Integral Disk Cache	✓	✓	✓
Automount	✓	✓	✓
Menu-Driven Interface	✓	✓	✓
Universal Data Exchange (UDE™)	✓	✓	✓
Consolidate	✓	✓	✓
Recompress	✓	✓	✓
Data & Image Compression for Windows	NEW!		
Optibase® JPEG Image Compression	NEW!		
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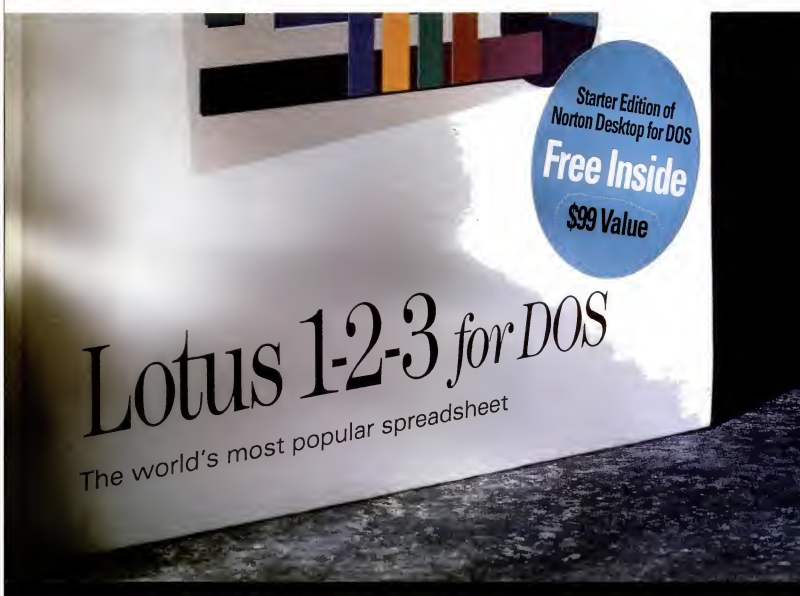
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Phone companies and users devise plan for national ISDN service

By CHERYL GERBER

After years of promising a coast-to-coast digital service over telephone lines, phone companies and major customers last week launched a definite plan for delivery.

The North American ISDN Users' Forum (NIUF) and the Corporation for Open Systems International last week

kicked off a national program to connect the isolated pockets of Integrated Services Digital Network (ISDN) service. The groups deployed the first switches for the National ISDN-1 during the third quarter of this year.

The industry-endorsed National ISDN-1 is a set of technical requirements to implement a standard proposed by an American National Standards Institute's

(ANSI) telecommunications committee. National ISDN-1 standardizes signaling protocols and messages between the switch and customers' equipment.

Regional Bell operating companies participating in the program said they will institute ISDN-1 so that by the end of 1994 at least 55.6 percent of the expected 114.9 million regional company access lines will be able to deploy ISDN service.

The program to connect ISDN nationally is called the Transcontinental ISDN Project 1992.

The standard will enable manufacturers of ISDN end-user equipment to produce products that will work anywhere ISDN is offered, regardless of which switch is handling the calls. Traditionally, digital switches from such companies as AT&T, Siemens Stromberg-Carlson, and Northern Telecom cannot communicate through ISDN.

The major carriers have agreed to use the National ISDN-1 network to run voice, data, video, and graphics over existing telephone wires. Interest in ISDN technology has prevailed because its basic rate service allows voice and data transmissions over the same telephone line.

Due to the slow deployment of ISDN, however, many companies have adopted alternative systems for digital transmissions, including high-speed modems.

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Vendors pledge backing for IDAPI standard

By SCOTT MACE

LAS VEGAS — The four industry giants promoting the Integrated Database API (IDAPI) garnered support from Computer Associates International Inc., Gupta Corp., Pioneer Software Inc., and others last week.

IDAPI's sponsors — Borland International Inc., Novell Inc., IBM, and WordPerfect Corp. — offered new specifics about the standard, a protocol that lets users control and manipulate remote, disparate databases. Developers expressed frustration with the lack of specifics.

The only corporate testimonial for IDAPI came from Price-Waterhouse Inc., which recently standardized on Borland Windows products.

"We are excited that these four major vendors are working together to provide a common way to access many database formats across all of the major platforms that we work with," said Sheldon Laube, national director of information and technology for Price-Waterhouse.

All existing Open Database Connectivity (ODBC) drivers, based on the Microsoft standard that shipped last month, should run easily against any IDAPI-compatible data servers because both adhere to the ANSI SQL Call Level Interface. But developers won't be certain of the compatibility between IDAPI's extensions and ODBC Level 2 extensions to SQL until IDAPI software development kits enter beta early next year.

While many database customers want the record-at-a-time interface that IDAPI will add to ODBC, the IDAPI group failed to set dates for a multivendor interoperability demonstration using IDAPI and a developer conference similar to the one held for ODBC last March.

Other vendors who pledged support for IDAPI include Micromin Inc., XDB Systems Inc., Delrina Technology Inc., Micro Decisionware Inc., Frame Technology Corp., Cognos Inc., and Watcom.



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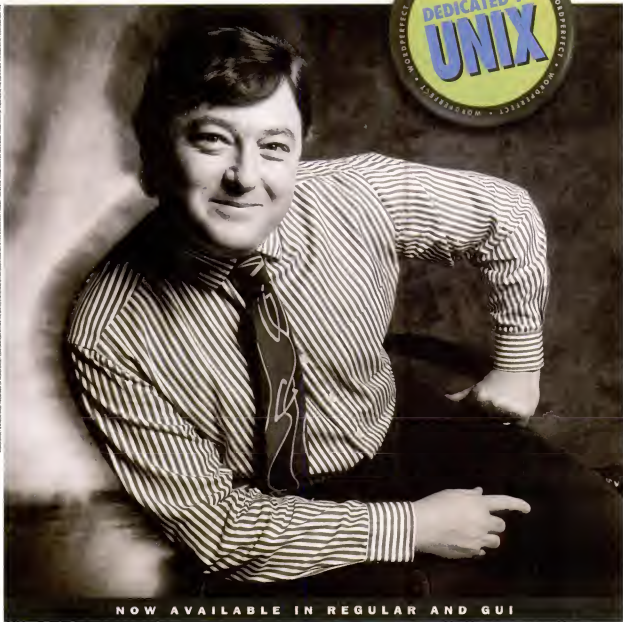
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NEWS / SOFTWARE

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TrueEffects scales

TrueType fonts

TrueEffects for Windows from MicroLogic Software lets Windows 3.1 users scale TrueType fonts with special effects. It allows users to combine their choice of patterns, outlines, shadows, and backgrounds with any TrueType font. It is scheduled for release December 1 at \$59.95, (510) 652-5464.

Neuron Data Inc., maker of Neuron Data Open Interface, announced support for Microsoft Corp.'s Windows NT operating system. Neuron demonstrated its products ported to NT at Comdex. (415) 321-4488.

LabTech Vision from **Laboratory Technologies Corp.** lets users generate real-time graphics for Windows and export them from any other application running under Windows. It can also connect to data sources with NetDemo, the networked version of Dynamic Data Exchange, and is available for Windows for Workgroups. It is priced at \$295; Vision's Draw Tools are \$195. It is expected to ship in early 1993. (508) 657-5400.

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Que offers pop-up reference utility

Que Software's Computer User's Dictionary, Electronic Edition for DOS and Windows contains more than 2,000 definitions of computer-related words and phrases that help users find definitions to words and terms in computer manuals or on-line help systems. It is available now for a 90-day introductory price of \$29.95 and after that for \$39.95. (800) 992-0244.

PenWare is shipping its Windows for Pen Computing version of its PenCell spreadsheet. The \$295 application had previously shipped for the Momenta operating environment. A stripped-down version, PenCell Lite, ships with Mouse Systems Corp.'s PenMate digitizer. (415) 858-4920.

MyAdvancedBackup for Windows from **MySoftware Co.** gives users backup protection. The application can be run in the background while the user works on other applications. Also, specific backup times can be established. MyAdvanced-Backup retails for \$59.95. (415) 325-9372.

Microsoft plans systemwide scripting

OLE 2.0 will give Windows the capability to control multiple applications

By STUART J. JOHNSTON

Microsoft Corp. will deliver early next year a long-promised Windows feature — the capability to control multiple applications using a systemwide scripting language.

The feature will be available in March when Microsoft delivers final versions of its Object Linking and Embedding (OLE). Version 2.0, said Cameron Myhrvold, Microsoft's

manager of developer relations.

OLE 2.0, which is currently in beta testing, will initially be provided with independent software vendors' applications — as OLE 1.0 was prior to Windows 3.1. OLE 2.0 will provide an underlying programming interface that lets Microsoft and other ISVs provide systemwide scripting languages.

However, the scripting capability will be useless if applications do not expose their inter-

nal functions — or objects — to the system.

Microsoft will make the applications functional for scripting in the first half of 1993 when the company ships its first application to include Object Basic.

Object Basic will provide a Visual Basic-like, object-oriented language for writing internal macro functions within an application, said Tom Button, group product manager for

applications programmability.

Another necessary component is a scripting language that lets users write systems-level programs that call an application's internal objects.

Microsoft and several other ISVs, including Lotus, have said they will likely offer both applications and system scripting languages.

Microsoft, located in Redmond, Wash., can be reached at (206) 882-8080.

DIS analysis tools reach out to more databases

SQL Server, Red Brick supported

By SCOTT MACE

Metaphor Inc. added SQL Server and Red Brick Warehouse to the list of databases that can be accessed by Metaphor's Data Interpretation System (DIS) for OS/2.

DIS combines relational database technology with a suite of graphical software tools that lets business users gather and analyze data. DIS can also return data directly into four commonly used PC file formats — text, WKS, DIF, or RTF — for further analysis and reporting by PC applications.

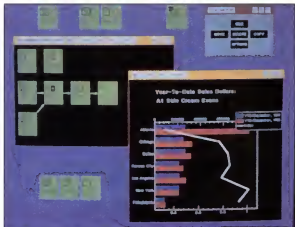
DIS can query DB2, OS/2 Database Manager, OS/400 SQL, SQL/DS, and Oracle.

Metaphor is also introducing

an IBM PS/2-based version of a Teradata gateway, which was previously available only on proprietary hardware.

Phoenix Home Life Mutual Insurance Co., in Enfield, Conn., has used DIS to reduce the cycle for turning around sales reports from nine weeks to overnight. One division of Phoenix, which sells stocks, bonds, and other financial services, uses DIS to access DB2 and OS/2 Database Manager data. They are investigating the new SQL Server link to obtain even higher data accessibility.

"In the environment of trade processing, you can't afford downtime," said Pat Theurkauf, Phoenix director of information systems.



Metaphor's Data Interpretation System for OS/2 can query DB2, OS/2 Database Manager, SQL, and Oracle.

Typical DIS pricing for 10 to 20 users ranges from \$50,000 to \$100,000. It can now serve as a front end to all the usual database servers from its Data Interpretation System.

The SQL Server gateway requires an RS/6000 running

AIX, but that system can also host SQL Server, said Pam Whitmore, product manager at Metaphor.

Metaphor, a wholly owned subsidiary of IBM, is based in Mountain View, Calif., and can be reached at (800) 346-3624.

Lotus' sneak preview of 1-2-3 for Windows 2.0 gets good feedback

By DOUG BARNY

Lotus Development Corp. demonstrated at the Boston Computer Society last week the upcoming Lotus 1-2-3 for Windows, Release 2.0.

The product, which has not yet entered beta testing, features support for 256 colors, intelligent charting that allows users to automatically generate charts by highlighting cells, and a scripting language that creates more interactive spreadsheet models, the company said.

The new version received a good reception from users. "It won't turn the spreadsheet world topsy-turvy, but it is a good, solid product," said John

Donovan, director of Workgroup Technologies Inc., in Hampton, N.H.

1-2-3 for Windows 2.0 provides a status bar, which serves as an alternative menu for easy

depending on the application services used.

Spell checking is now common to all applications. However, 1-2-3 will use the existing spelling checker instead of

The product features support for 256 colors, intelligent charting, and a scripting language.

access to fonts and other options. It includes drag-and-drop support.

Other features of 2.0 include context-sensitive menus and Smart Icons, which change

adding memory to the hard drive with a redundant directory.

Worksheet version management eases tracking of what-if's. Users can have various versions

of the same worksheet, with each one based upon different assumptions, such as baseline and best- or worst-case scenarios. Users can comment on each version.

Release 2.0 supports Dynamic Data Exchange and Object Linking and Embedding. It allows users to define and work with discontinuous ranges. For example, a user could highlight a series of cells in one area and highlight a separate series in another area, and use them both to form a chart.

Lotus expects to ship the product early next year. No pricing has been set.

Lotus, based in Cambridge, Mass., can be reached at (617) 577-8500.

Slate offers big savings on Grid pen suite

By YVONNE LEE

LAS VEGAS — Grid Convertibles users will be able to get a suite of pen applications from Slate Corp. for about half what they would cost individually.

Grid Pen Essentials combines two existing Slate applications with two others that were introduced last week here at Comdex. The new applications include a note taker and fax application.

LooseLeaf Notetaker, which retails for \$149, provides lined, unruled, and graph paper, as well as different pen thicknesses, highlighters, and erasers.

The program automatically date stamps each page. Users can group pages or items together to be looked up later. They can search using these indexes, dates, or with Slate's Tiny-Text feature, which shows pages in miniature.

WinFax Pen, developed by Delrina Technology Inc., lets users fax from any Windows for Pen application. It also lets users zoom in, mark up, and display multiple fax pages.

WinFax Pen sells for \$129 unboxed.

Slate has combined the two applications with DayTimer Pen Scheduler, PenBook, a spare Convertible pen, a Convertible carrying case, and a screen saver for \$349.

The package would normally cost more than \$700, said Slate CEO Vern Raburn.

Grid Pen Essentials is scheduled to ship in January.

Grid, in Scottsdale, Ariz., can be reached at (602) 433-7322.

JPEG utility squeezes multimedia files

Telephoto's Alice-Win 3.0 tackles high-end images on multiple platforms

By DOUG BARNEY

Multimedia mavens bumping against the limits of their hard drives may appreciate a new JPEG image compression and file conversion product from Telephoto Communications Inc. that promises to reduce the file size of compressed images.

JPEG compression is a method of shrinking high-resolution image files, which often consume many megabytes of memory and choke hard drives by using all available RAM. A typical compression ratio is 20-to-1, which produces good-quality images. When compressed at a 3:1 ratio using Telephoto's Alice-Win 3.0, the company claims the images are

indistinguishable from an uncompressed image.

Alice-Win 3.0, available for an introductory price of \$175, now supports an array of TIF images and can import PCX files.

The speed of reducing full-color images to 16- and 256-color displays has been improved.

Telephoto has developed a cross-platform JPEG strategy that enables Alice-Win to run on DOS, OS/2, Solaris, and the RS-6000. Images compressed with the Windows version can be decompressed and used on any hardware system that runs Alice-Win.

Telephoto Communications, in San Diego, can be reached at (619) 452-0903.



Telephoto's Alice-Win 3.0 image compression software runs on multiple platforms, including Windows, DOS, OS/2, and Solaris.

SoapBox puts you in touch with the government

By TORSTEN BUSSE

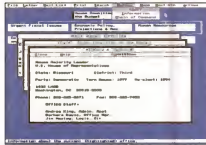
SoapBox Software is putting the power to communicate with the federal government at your fingertips.

"The idea is to get people involved in the political process and give them an easy way to make their voices heard," said Lee Moberly, general partner in the company.

The DOS-based Federal SoapBox application integrates a text editor and database program, allowing users to quickly compose correspondence to government agencies and lawmakers.

The database provides flow charts of who's who in the fed-

eral government and descriptions of jurisdictions for more than 600 offices. It also offers staff listings including address, committee assignments, and



Federal SoapBox's database includes fax and phone numbers for government staff.

phone and fax numbers.

The text editor includes writing guides and sample form letters that help users write effective correspondence in a short amount of time, according to Moberly.

The program also allows users to create mass-mailing campaigns to public officials; search the database by name, topic, or ZIP codes; and provides a document library about the government.

A Windows version and Version 2.0 for DOS will be released later this year. A Macintosh version will follow in the first quarter of 1993. Also in the works are Unix, Amiga, and OS/2 versions of Federal SoapBox.

By the middle of next year, SoapBox will offer state versions of the program, starting with California, Texas, and New York.

Federal SoapBox is priced at \$89, which includes three updates to the database. A yearly subscription to the quarterly updates is \$49.

SoapBox is based in San Rafael, Calif., and can be reached at (800) 989-7627.

PicturePress 2.5 gains compression

Storm adds Photoshop plug-in module to image utility

By JEANETTE BORZO

Storm Technology Inc.'s PicturePress 2.5 offers users image file compression, conversion between color models, and a variety of other features.

Shipping now, the Macintosh-based image utility software offers bit depth and file format information on graphics files and image management features including caption text and image thumbnails. Users can script all PicturePress functions with AppleEvents under System 7.

Storm has included its new JPEG image compression engine in PicturePress for faster processing and higher quality images. The \$199 software sup-

ports JPEG, TIFF, PICT, and EPS graphic file formats and includes QuickTime 1.5.

PicturePress 2.5 comes with a plug-in module for Adobe Photoshop to provide JPEG

PicturePress has JPEG compression.

compression and decompression for gray-scale, RGB, and CMYK images. The plug-in module lets users save a Photoshop path, a clipping path, a caption, and a thumb-

nailed with their images.

Other applications that accept Photoshop plug-ins can access many of these PicturePress features.

Storm is offering its PicturePress software in a bundle with its PhotoFlash accelerator card. The card delivers 60-MHz of Digital Signal Processor (DSP) power at more than 60 million instructions per second.

The bundle, called PicturePress Plus, sells for \$599. Users who already have the accelerator card can upgrade their PicturePress software for \$59.

Storm Technology, headquartered in Mountain View, Calif., can be reached at (415) 691-6600.

Intergraph to port its Unix-based engineering apps to Windows NT

By STUART J. JOHNSTON

Microsoft Corp. announced that Intergraph Inc., a major vendor of Unix-based engineering and geographical mapping packages, will port all of its applications to Microsoft's forthcoming Windows NT.

"As we talk to customers who are doing engineering work, Intergraph's name comes up repeatedly," said David Thacher, product manager for Windows NT. "Customers have been very excited about this announcement."

Intergraph is among more than a dozen engineering developers that promised Windows NT products by 1993.

Additionally, Intergraph announced it will release a ver-

sion of Windows NT that runs on its proprietary Clipper RISC processor — bringing to four the number of chip architectures announced for the new operating system.

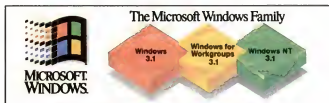
Other architectures that NT is currently targeted for are the Intel x86, MIPS R-4000, and DEC Alpha.

Intergraph's product deliveries will begin during the first half of 1993 when it releases an NT version of its MicroStation software product.

"It's another high-end niche announcing its major players are moving onto NT," Thacher said. "These companies, who have been strictly focused on Unix, are seeing the opportunity to run side-by-side with off-productivity applications."

To anyone who has
ever dreamed that
personal computing
could be even easier
than it is today.

This is your



Microsoft Windows makes using computers easier for everyone.

To date, millions of people have already opened their eyes to the Microsoft® Windows™ operating system.

Why? Because Windows makes their computing easier. Faster. And more reliable.

But we weren't about to stop there. After all, people need their computers to do more these days than increase their level of personal productivity.

They need PCs to help them work together. And they need affordable ways to run powerful new programs.

So we've added two new operating systems to the Windows family.

To help people work together, we have just introduced Microsoft Windows for



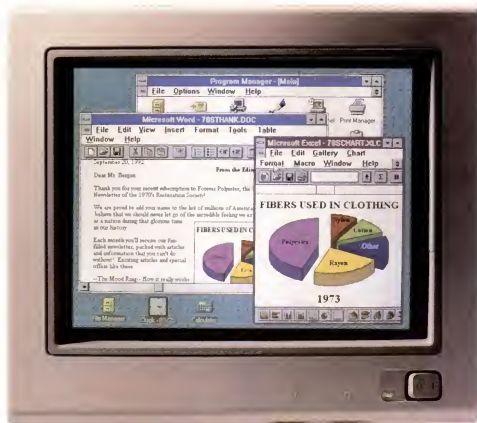
MICROSOFT WINDOWS 3.1

Microsoft Windows is the business standard in operating systems. It's the foundation for all systems in the Windows family.



MICROSOFT WINDOWS FOR WORKGROUPS 3.1

Windows for Workgroups lets people work together through built-in electronic mail, file sharing, printer sharing and scheduling.



wake-up call.

Workgroups 3.1. It has built-in networking that gives you a whole new level of productivity.

And we'll soon be releasing the Microsoft Windows NT[™] 3.1 operating system.

As a server or a desktop, Windows NT makes powerful computing easier. And it's ideal for people who need to use the most powerful hardware and applications available.

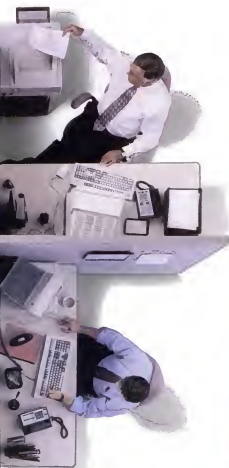


There's one way to make sure a new PC is going to be easier to use. Just look for this logo.

But here's the best part: They all share the intuitive Windows interface. And run the same applications. So you can preserve and build on all your investments in Windows.

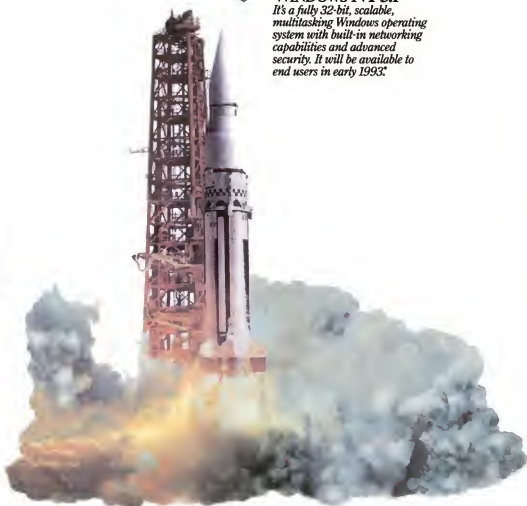
If you'd like more information, call us at (800) 426-9400, Department HM9, for your free 8-page color brochure. It's time for you to get started on a new day.

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Making it easier



MICROSOFT WINDOWS NT 3.1

It's a fully 32-bit, scalable, multitasking Windows operating system with built-in networking capabilities and advanced security. It will be available to end users in early 1993.



Introducing Windows

It's based on the idea that
require a generous amount of

All it takes is a few clicks of the mouse to share files and share information. No more long walks down the hall.

Now several people can share printers, so everyone can use the printer that best suits their needs, just by clicking a button.

MICROSOFT WINDOWS FOR WORKGROUPS

Since we've included Microsoft Mail, you can instantly send electronic mail to individuals or everyone in your workgroup. You can even add sounds and pictures.

We've also included Microsoft Scheduler, so you can manage calendars and schedule meetings with others. And you can spend more of your workday actually working.

ows for Workgroups. t business relationships mount of give and take.

As anyone in business would tell you, success often depends on how well you can work with others.

Not coincidentally, this is the strength of the Microsoft® Windows® for Workgroups 3.1 operating system.

In fact, with its built-in networking, one could describe Windows for Workgroups as downright gregarious.

In other words, Windows for Workgroups lets you share something with your coworkers other than frustration.

But just because it has these advanced capabilities doesn't mean that you'll need an advanced degree to understand it.

Quite the contrary.

Microsoft Windows for Workgroups is based on the familiar interface that millions

of people have come to love. Even if you've never used Windows, it's the ideal starter network.



For starters, you can say goodbye to the old "mind if I borrow your disk" routine. With Windows for Workgroups, you'll be able to share files and applications, even printers, faster than you can say "eject."

And then there's this handy little feature called Schedule+.

Say you want a meeting on Tuesday with Matt, who has a meeting with Duncan and Karen, who, wouldn't you know it, are meeting with Jim that same day.

No problem.

Just a couple of clicks and, zip, everyone's schedules are laid out right in front of you. So you can book a meeting without making a jillion phone calls.

Even things as basic as sending memos are simplified with Microsoft Windows for Workgroups. Now you can send electronic mail, including voice and graphics, to anyone in your workgroup.

And since it works with Windows-based and MS-DOS® applications just like Windows 3.1, you can preserve and build on any investment you make in Windows.

Which brings up our final point.

Windows for Workgroups is great for creating workgroups on existing networks, like LAN Manager and NetWare®, as well.

All in all, Microsoft Windows for Workgroups will give you an entirely new level of productivity.

To find out more, go to your local computer retailer. Or call us at (800)426-9400, Dept. HM9, for the store nearest you.

Once you find out everything it can do, you'll want to share it with everyone.



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Window Manager / Brian Livingston

Use your numeric keypad to add 16 Windows macro functions

When IBM introduced its PCs, the keyboards had their function keys on the left and an integrated numeric and cursor-arrow keypad on the right. In 1985, IBM moved the function keys above the top row of characters (where

they would be as far as possible from users' hands). At the same time, IBM added a separate numeric keypad on the right for bookkeepers who've learned 10-key data entry. For the other 98 percent of us, this new keypad covers up extra desk space we used to have.

I always use the separate arrow keys to move my cursor and never use the

numeric keypad for anything. At the same time, I've always wanted more function keys.

Now I have found a way to redefine all 16 of the numeric keypad keys — and many other keys — into any Windows function available.

As you may know, I routinely load a small Recorder file that redefines some

of my keys. For example, the F10 key performs the same function in all Windows applications (it activates the first choice on the menu, just like pressing and releasing Alt). So I've redefined F10 to the keystroke combination Alt-F4 (which closes all apps). This way, I get rid of one trivial function and replace it with a better one.

But one of Recorder's many limitations is that it cannot redefine the numeric keypad. Besides A to Z and 0 to 9, it only allows you to redefine certain keys in its Macro Properties drop-down box (Backspace, Delete, and so on) with combinations of Ctrl, Alt, and Shift.

I've found that you can replace the keys in this drop-down box with any other keys you want (such as the numeric keypad). To do this, you need an editor that allows you to type hexadecimal numbers. Several hex editors are available in such products as Norton Utilities and PC Tools. If you don't have these, you can get a handy new Windows shareware hex editor by sending \$10 to Al Funk, 42 Parkwyn Drive, Delmar, NY 12054; CompuServe 71505,1277.

First, make a copy of RECORDER.EXE and call it RECORDE2.EXE. Open this copy in your hex editor. Near the end of the file there is a section that starts with "Backspace" and ends with "F16." This section determines the strings that will appear in the Recorder's drop-down box as keys that can be redefined.

After each string, such as F1, is a hex number representing the key code for that key. The key code for F1 is 70, F2 is 71, and F16 is 7F. (Remember, it's hex.) After each key code is the hex value 00, which is a "null" that ends the string. Replace the strings from F1 to F16 with N1, N2, and so on, representing the numeric keypad keys. Each string must retain its original length. The string that replaces "F16," for example, must be exactly three characters long. Add spaces at the end of the new strings, if necessary, so they are the right length.

You must also change the hex key code values to the correct ones for each key. The table below shows each keypad key and its hexadecimal key code value:

N050N868
N161N969
N262N*6A
N363N*6B
N464N*6C
N565N*6D
N666N*6E
N767N*6F

After you save your changes, you can create macros in RECORDE2.EXE and assign them to numeric keypad key combinations. Any macros you create in this way work fine when loaded and run by the original, unaltered Recorder. I've redefined several keypad keys to insert special characters, such as fractions, into my documents. This works in every Windows application.

Next week I'll describe how I did this and how you can get a macro that does it automatically.

Brian Livingston is the author of Windows 3.1 Secrets (IDG Books). Send tips to: CompuServe 70053,2053; MCI 420-0583; Internet 420-0853@mcimail.com; or fax: (206) 282-1248.



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Unfortunately, we have not received payment for the 12 Tahitian Swayback Guppies you ordered. It may have just slipped your mind. Or more likely, you've already sent in your payment, so just ignore this notice. We don't know what got into us. Sorry to bother you.

You're special to us.



2nd Notice

Your account is now 60 days **PAST DUE**. We hope you are paying more attention to your guppies than you are to us. Remit your payment to avoid further action.

Please pay your bill so we can pay our bills.



3rd and FINAL NOTICE

Your account is now **Seriously Delinquent**. If you do not pay the total amount due by Friday midnight, your guppies will be repossessed, your credit damaged and your fishing license revoked.

Remember, we know where your guppies live.



Thank You

We appreciate your prompt payment. As always, we value your patronage and we look forward to seeing you soon.

P.S. By now, you've discovered the phenomenal rate at which a Tahitian Swayback Guppy grows. Coincidentally, for a limited time, our 100-gallon aquariums are now on sale.

Have a nice day!

NEWS / HARDWARE

PIPELINE

PRICE CUTS

Lexmark cuts prices on laser printer series

Lexmark International Inc. announced price cuts of up to 34 percent on its IBM 4029 LaserPrinter Series. The IBM 4029 Model 10 is now priced at \$1,399, down \$200. The IBM 4029 Model 42 is now \$2,499, compared with its former price of \$3,795. (606) 232-4754.

ViewSonic has lowered the price of its ViewSonic 7 by \$100. The monitor's suggested selling price is now \$1,299. The flat, square-screen 17-inch monitor supports a resolution of 1,280 by 1,024. (800) 888-8583.

ANNOUNCED

DEC introduces nine-wire dot-matrix printer

Digital Equipment Corp.'s LA310 MultiPrinter wide carriage, nine-wire dot-matrix printer handles five-part forms, allows for emulation assignment by port, and supports Epson, DEC ANSI PPL2, and IBM ProPrinter protocols. The LA310 Model 10, which replaces the LA210, offers parallel and serial interfaces. Shipping in December, the LA310 MultiPrinter is priced at \$599. (508) 493-5111.

A line of graphics accelerator boards from **ATI Technologies Inc.** is designed specifically for use with Microsoft Corp.'s Video for Windows and Intel Corp.'s video image compression technology. The mach32 accelerator boards are designed to play back video files at 32 frames per second with a resolution of 640 by 480 pixels. Pricing for the accelerators has not yet been set by the company. (416) 756-0718.

SHIPPING

Smart Label Printer Pro supports TrueType

Seiko Instruments USA Inc.'s Smart Label Printer Pro produces labels for envelopes, file folders, Rolodex cards, name badges, or tape cassettes. The printer also supports TrueType fonts, allows for mixing of text, graphics, and bar code fonts, and supports automatic address capture from most Windows applications. The Windows/DOS version is priced at \$249. The DOS-only version and Macintosh version are priced at \$199 each. (800) 888-0817.

Vendors take new tack with accelerator chips**Debut application-specific DSPs**

By CATE CORCORAN
AND JEANETTE BORZO

A handful of board manufacturers are taking a new approach to software acceleration with digital signal processor (DSP) chips that are programmed to speed up a particular application rather than optimize graphics operations in general.

DayStar Digital Inc., Newer Technology, RasterOps Corp., Spectral Innovations Inc., and Storm Technology Inc. have licensed portions of Adobe's Photoshop software to program into their DSP chips.

The DSP chips will run the modules of software faster than the system CPU, thus speeding up filters, scaling, and other pixel conversions. Capable of accelerating specific functions by as much as 500 percent, the boards are aimed at graphics professionals who use Photoshop extensively, said Bryan Lamkin, Adobe product marketing manager for Photoshop for Windows.

In contrast, other accelerators — such as those for Microsoft Corp.'s Windows — speed up screen operations common to all graphics applications. Pixel conversion code is unique to every program, so these types of operations can't be generically accelerated, according to Lamkin.

In addition, the application must be written in modular form so pieces can be broken

out for acceleration, Lamkin said.

The boards might accelerate different sets of functions, depending on which software modules board makers use. All can be upgraded with software.

Potential mass-market applications that could benefit from this type of acceleration include multimedia — particularly video — said Jon Peddie, publisher of *PC Graphics Report*, in Oakland, Calif. Compression and decompression algorithms will be implemented in DSPs for a variety of platforms, he said.

"Compression and decompression algorithms are just one module of [Microsoft's] Video for Windows," said Jon Peddie.

Several boards will ship early next year, Lamkin said. They will range in price from \$800 to \$2,000. The boards

will be available for the Macintosh and Windows. (Photoshop for Windows is due out next year.)

DayStar, in Flowery Branch, Ga., can be reached at (404) 967-2077.

Newer Technology, based in Wichita, Kan., can be reached at (800) 678-3726.

RasterOps, in Santa Clara, Calif., can be reached at (408) 562-4200.

Spectral Innovations, in San Jose, Calif., can be reached at (408) 727-1314.

Storm Technology, located in Mountain View, Calif., can be reached at (415) 691-1111.

The DSP chips will run the modules of software faster than the system CPU.**Hardware introductions at Comdex**

• 3½-inch 386SL subnotebook from Leading Edge will ship in May and list for around \$1,200. A similar 486SL-based active matrix color notebook will sell for about \$3,200.

• The PowerBook/DOS Companion from Apple Computer Inc. includes PC/Exchange, MacLinkPlus/PC, MacVGA, and PowerPrint for \$219. The software collection is designed to introduce desktop PC users to the versatility — and compatibility — of the Mac portable line.

• Panasonic introduced three new notebook models, a low-power 386 that uses AMD's Am386 SX1V processor, and two 386SL-based systems with built-in trackball. One of the 386SL models has an active matrix screen.

• AST Research introduced a 486SL-based notebook with an active matrix color screen. It is scheduled to ship in January for \$4,495.

• Motorola introduced a \$1,350 two-way pager designed to attach to PCs.

• Four 14-inch TouchMonitors from Elographics are priced from \$883 to \$1,255 in large-volume quantities. The company also introduced a 17-inch monitor for \$1,600 in quantities of 500.

• An 8-bit gray-scale scanner from NiScan is designed to offer users a portable full-page scanner. The device hooks up through a computer's printer port, runs off batteries, and costs \$799.

• Four graphics accelerators from VidTech Microsystems Inc. offer users combinations of VESA local bus and ISA support as well as DRAM- and VRAM-based solutions. The boards range in price from \$349 to \$799.

• At \$295, Boca Research's SuperX Accelerator VGA offers users support for 24-bit color at a resolution of 640 by 480. At higher resolutions, the board, which will ship in December, supports 256 colors.

• Legacy Storage Systems, in Hopkinton, Mass., announced a fault-tolerant RAID Level 5 disk array for Novell networks called NetSpan. The system incorporates 12 disks for a total capacity of 12 gigabytes at a suggested price of \$12,000.

Lexmark, C&T notebook to have a 40-hour battery life

By YVONNE LEE

In the ongoing effort to produce lighter notebooks with longer battery life, two companies recently reached an agreement to produce a 2.5-pound computer with a 40-hour battery life.

Chips & Technologies Inc. and Lexmark International Inc. demonstrated at Comdex last week the 1½-by-10-by-¾-inch MiniBook.

Lexmark will build the C&T-designed computers and market them to OEMs.

One possible manufacturer might be IBM, which has a stake in Lexmark, according to Dick McCall, Lexmark manager of OEM market development.

"IBM has looked at [the MiniBooks]," McCall said. "They haven't committed to that, but they might be one of the OEMs."

The subnotebooks will offer no hard or floppy drives, but they will include software in ROM and two PCMCIA slots for storage.

Software will include DOS 5.0 in ROM, Stacker compression software, a word processor, spreadsheet, and a personal information manager.

The three MiniBook models will use 7-, 8-, and 10-MHz versions of Chips & Technologies' 8086-compatible PC/Chip sin-

gle-chip PCs. The 10-MHz version will have a VGA screen and 2 megabytes of RAM.

The notebooks will have a Lexmark-designed 77-key keyboard with embedded numeric keypad and will last about 40 hours on six AA batteries.

Chips & Technologies, in San Jose, Calif., can be reached at (408) 434-0600.

Lexmark, in Lexington, Ky., can be reached at (606) 232-3000.

Sorry, you're going to have to plug it in yourself.

By now, you really should know that the Microsoft® Windows™ operating system makes computing easier.

Now Microsoft is working with personal computer manufacturers to make it even easier for you to get up and running.

We call it Microsoft Windows Ready-to-Run. Quite simply, when you see the Ready-to-Run logo, it means that a PC already has Microsoft Windows installed.

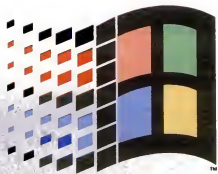
There is no need for installation disks. No set-up procedures. No additional steps.

What's more, it means the personal computer has already been optimized to run Windows-based applications.

Just flip a switch and you're ready to start working with Microsoft Windows.

Oh, there is one little technical matter concerning an electrical plug and a wall outlet. We apologize for any inconvenience this may cause.

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"Compaq hit the mark with 14 machines that combined low price with high performance and a most-wanted list of features."

—InfoWorld, June 22, 1992

"...Compaq has slashed prices without compromising quality."

—PC Week, June 22, 1992

"Compaq Computer Corporation has taken an aggressive pricing stance with its new ProSignia server line."

—PC Week, October 5, 1992

"Despite its low price, the ProSignia packs a variety of features."

—PC Week, October 5, 1992

"...For running Windows on the road, the Compaq LTE Lite/25c is clearly the best notebook yet."

—PC Laptop, October 1992

"It is the best-looking color screen on any notebook, plain and simple."

—PC Computing, August 1992

"DeskPro/i...combines the traditional Compaq virtues of strong performance and technical innovation with aggressive pricing."

—PC Week, June 22, 1992

"Make no mistake about it: this is a strikingly energetic Compaq."

—PC Week, June 22, 1992

"You'd expect technical leadership from Compaq, but the Lite/25c's aggressive price took us completely by surprise."

—PC Computing, August 1992

"Low-cost ProLinea offers solid quality."

—InfoWorld, October 5, 1992

"...Compaq Contura 3/25 notebook is part of Compaq's clone-beater strategy and packs an aggressive price/performance punch..."

—PC Magazine, August 1992

"That's leadership."

—PC Week, June 22, 1992



Our alliance with Intel enables us to improve on processor technologies with such advances as easy-to-upgrade architectures and sophisticated power-conservation features.



Compaq engineers have already been improving our new affordable PCs. In fact, the COMPAQ Contura PC is now available with a super-crisp, passive-matrix VGA color screen.



Large vendors eye portable disk market

Seagate, Oki announce ventures

By Shawn Willett

Disk drive vendor Seagate Technology Inc. is hedging its bets with an equity investment in SunDisk Corp., maker of solid-state disk products for

A solid-state disk, which is identified by the system as a regular drive, is composed of silicon memory and has much faster access times.

Seagate quoted industry research figures predicting that palmtop computers would be a \$47 billion market by the end of the decade.

Seagate, however, is also selling its 1.8-inch magnetic drives for the machines.

"We believe that both devices will work together," Shugart said.

"The magnetic drive will always have a lower cost."

Oki Semiconductor debuted its own solid-state



Seagate is betting on SunDisk's future in the palmtop market.

portable PCs.

Another vendor, Oki Semiconductor, also announced its entry into the portable disk retail market and plans to partner with a hard drive vendor.

"It would be really stupid for us to design our own product right now," said Alan Shugart, Seagate president and chairman. "It's less risky for us to invest in SunDisk."

The SunDisk product, although expensive, is considered to have a future in palmtop and other portable computers because, unlike regular magnetic drive, it is shock resistant.

Zenith subnotebook features light weight, day-planner size

By Yvonne Lee

Data Systems has elaborated on the notebook computer by building a subnotebook that folds into the shape of an organizer.

The 3.9-pound Z-Lite 320L has a curved back and spools like a day-planner notebook.

Zenith reduced the Z-Lite 320L's weight by removing the floppy drive. An external drive is available and ships with the \$2,199 Windows model. The floppy drive weighs less than 2 pounds, and the recharger/AC power adapter weighs less than half a pound, which makes the carrying weight less than 5 pounds. A model with DOS pre-installed and no floppy

drive sells for \$1,899.

The Z-Lite 320L has a 60-megabyte hard drive and two PCMCIA Type 2 slots.

The notebook runs on Intel's 3.3-volt 386SL processor and has a battery life of 3 to 3½ hours, the company said.

The computer's 8½-inch screen displays at VGA resolution and can operate simultaneously with an external VGA monitor. The Z-Lite 320L features 800-by-600 resolutions on an external display alone.

The subnotebook's keys are raised to give the illusion that the keys are spaced farther apart than they actually are. Both models are set to ship in mid-December.

Zenith is in Buffalo Grove, Ill., at (800) 553-0331.

Printers on bill at Comdex

Product debuts target low-end and network needs

By Torsten Busse

Users looking for low-end and networked laser printers got more choices last week as Star Micronics America Inc., Digital Equipment Corp., and Kyocera Electronics Inc. showed new products at Comdex.

Kyocera rolled out its environmentally sensitive Ecosys asil FS-3500A network printer. The amorphous-silicon technology used in the Ecosys requires no toner cartridges.

The printer features Advanced Micro Devices' 29000 16-MHz RISC processor, 2 megabytes of RAM, and parallel and serial interfaces. It offers an edge-enhanced resolution of 300 by 1,200 dots per inch (dpi), 87 bit-mapped and 59 scalable fonts, and six emulations, including PCL5. Three models holding 250, 750, or 1,250 sheets of paper range in price from \$3,895 to \$4,495.

Star demonstrated its LS-5 family of RISC-based laser printers built around Fuji Xerox's new 5-page-per-minute (ppm), 300-by-300-dpi engine.

The Cx4-end 929 LS-5 features PCL4 and Epson FX-286 emulations, automatic selection between parallel and RS-232C serial interfaces, 14 bit-mapped fonts, and 512K of RAM, upgradeable to 4M megabytes.



DEC's DECLaser1152 connects to PCs and Macintosh computers and offers support for PostScript and HP PCL5.

The midrange \$1,149 LS-5EX has the LS-5 features plus PCL5 and HPGL emulation; 1 megabyte of RAM, upgradeable to 7 megabytes; a high-speed Centronics parallel port; and eight scalable fonts.

The high-end \$1,499 LS-5TT ships standard with 2 megabytes of RAM, upgradeable to 8 megabytes, and offers Micro-soft's TrueType fonts and an AppleTalk interface.

DEC's \$1,299 DECLaser1152 network laser printer features Adobe PostScript Level 2 and HP PCL4 emulations. Users

can assign emulations to the standard parallel, serial, and AppleTalk interfaces. The units ship with 2 megabytes of memory, upgradeable to 4 megabytes, and prints at a resolution of 300 by 300 dpi at a speed of 4 ppm. The DECLaser1152 also includes 17 scalable PostScript fonts. Through March, the 1152 will be available for \$999.

Star Micronics, in New York, can be reached at (800) 447-4700. Kyocera, in Somerset, N.J., is at (908) 560-3400. Call DEC in Maynard, Mass., at (508) 493-5111.

Corollary multiprocessor design updated for NT

By Tom Quinlan

Corollary Inc. is refining its existing multiprocessor technology in anticipation of Microsoft Corp.'s release of Windows NT early next year.

Although Corollary has already announced a Pentium-based multiprocessor solution — the C-Bus II — the company has now upgraded its design architecture to take advantage of NT's symmetric multiprocessing design.

"Microsoft demands a completely symmetric design for multiprocessing systems, so we've modified our existing C-Bus architecture," said George White, president of Corollary.

Designed for the OEM marketplace, the enhanced bus features a 66-MHz Intel 486DX2 processor and its Advanced Programmable Interrupt Controller, which enables any processor to directly address the system.

Existing Corollary designs, used primarily in Unix-based

systems, divide tasks among the various processors, with one processor communicating with the system.

Corollary is also offering a multiprocessor software developer's system with three 486 processors for use in developing multiprocessor software.

"Software developers need a multiprocessing system in order to develop software that works with those types of systems," White said.

Although some symmetrical multiprocessor-based systems are already on the market — such as Compaq's dual-processor SystemPro line — "you really need more than two processors to write true multiprocessor-aware code," White said.

The development system is available now for \$15,000, which includes a two-day orientation class on multiprocessor systems.

Corollary is based in Irvine, Calif., and can be contacted at (800) 338-4020.

Packard Bell adds minitower and notebooks

Packard Bell said it is extending its line with two 486-based notebooks and a "minitower" server configuration.

The server uses a 486DX2 processor running at 66 MHz and has five expansion slots. Its 8 megabytes of memory can be supplemented with 256K of cache on the motherboard. The systems come with 245-megabyte hard drives.

Packard Bell's two new notebooks use the 486DX2/5 processor. The monochrome version, which will be available in December for \$2,200, uses a 120-megabyte hard drive and a fax/modem connection. The color active matrix version will not ship until early next year for a price of \$4,000, the company said.

Packard Bell's Minitower will sell for \$2,850 and will be available in December. Packard Bell can be reached at (818) 773-9521.

— Shawn Willett

Tech Talk / Steve Gibson

Eureka! Gold mines of ideas on multithreading and Windows



This week I want to tell you about two really terrific recent discoveries of mine. The first is a tutorial and

programming library for experimenting with multithreaded programming concepts, and the second is easily the best book I've ever encountered on programming for the Windows environment.

Designing computer solutions with multiple "threads" of execution is a very different way of thinking about traditional computer problems. In school we learned about the traditional single-threaded approach where at any time we know absolutely where the computer "is" in our code and where it will step next. Essentially, our code steers the computer as it "threads" its path of execution through our program.

In contrast, a multithreaded program has many "places" where the computer is, with each of these many threads of execution moving autonomously and simultaneously throughout the program. The separate threads interact with each other through a system of message passing and resource ownership.

For example, one thread might be responsible for processing keyboard input. When it receives a key-event message from the keyboard hardware, it adds the current flavors of Caps, Control, and Alt shifts, sends this resulting message to the editor thread, then asks the keyboard hardware for another message and goes to sleep until one is returned.

Although this might at first seem like a weird way of decomposing a problem, it leads to amazingly efficient, elegant, and easy-to-maintain and -grow systems. I wrote in depth about multithreading earlier this year, and several readers have since written me asking where they could learn more about "threading" and how they could experiment with it. At that time I had no answer, but today I have a great one. Mix Software Inc., the developer of Power C, has introduced Multi-C for just \$29.95.

Multi-C is a really nifty add-on library for Borland, Microsoft, Power C, and other C compilers. It gives any C program all of the benefits of true multithreaded operation, including flexible thread scheduling, critical sections, semaphores, messaging, and all of the rest.

The 225-page owner's manual is a terrific introduction and tutorial, complete with source code for the classic game of Space Invaders, rewritten to demonstrate the benefits and applications of multithreading.

For an additional \$10, Mix will also provide complete source code to its library so you can have ultimate control. You can order Multi-C from Mix at (800) 333-0330 or phone them with technical questions at (214) 783-6001. Also, if you don't yet own a C compiler, and don't need all the bells and whistles

offered by Borland or Microsoft, Mix's Power C is just \$19.95. I can't imagine a better way to play with these new ideas.

I'm adding one more title to my list of must-have Windows books: *DLLs and Memory Management*, by Mike Klein of Atomic Software and published by SAMS under ISBN No. 0-672-30236-5. This book provides the clearest and

most comprehensible explanation of Windows I have ever seen or will ever need.

The problem I've had with Windows books is that their authors seem to talk above the reader, as if they wrote the book more to show off how much they know than to help the reader to know more. But Mike Klein's *DLLs and*

Memory Management is different; it is an amazingly lucid treatise that simplifies Windows. By the way, please forgive the book's title. The SAMS editors must have thought it would fill a niche in their Windows books lineup; the book is a thorough discussion of all things Windows. Buy it and find out how Windows works, finally.

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Steve Gibson is the developer and publisher of SpinRite and president of Gibson Research Corp., based in Irvine, Calif. Send comments to InfoWorld at MCI Mail 259-4127 or fax them to (415) 358-1269.

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NEWS / NETWORKING

PEOPLE

AGREEMENTS

Motorola, Sprint ink wireless mail link

Motorola Inc. and Sprint International signed an agreement to link Sprint's electronic mail system, SprintMail, with Motorola's wireless messaging network, Electronic Mail Broadcast to a Roaming Computer (EMBARC). When the companies deliver a product, users of Sprint Mail should be able to send multipoint messages from anywhere to EMBARC recipients. Currently, the wireless one-way service is available in as many as 200 U.S. cities. Canadian operations will begin by year end, and EMBARC will offer international service by the end of 1995.

Clearpoint Research Corp. and **Datability Inc.** have agreed to jointly develop a line of advanced multiprotocol RISC-based Ethernet bridging and router products. Under the pact, the two firms will focus on expanding the offerings in the high-end sector of protocol-transparent bridging routers, according to officials from both companies. The agreement extends an earlier agreement between the firms that gave rise to the Datability DXA-550 bridge/router, which was introduced last September.

ANNOUNCED

Relay 5.0 supports true 3270 emulation

Microcom Inc. announced this month Relay Gold LAN 5.0, the latest version of its PC-to-mainframe communication software. The \$825 product provides true 3270 DFT terminal emulation through any connection. Relay Gold allows as many as 250 PC network users to simultaneously link to a mainframe or minicomputer, to a bulletin board, or to other PCs connected to a LAN. It supports most protocol converters, Token Ring, and a range of gateways. (800) 967-3529.

NCR Corp. and **Metaphor Inc.** have announced a data access option for users of Metaphor's Data Interpretation System (DIS) product. It provides DIS users with a PS/2-based gateway to the NCR DBC/1012 database server and is available now. For 10 to 20 users, the list price is \$100,000 to \$50,000 to \$100,000 depending on configuration. NCR is at (619) 485-2799.

Vendors offer centralized net control

BY TORSTEN BUSSE

Vendors are lining up to pledge support for the industry's major network management platforms in response to users' requests for more robust, centralized control of the enterprise.



Network Inc.'s trouble-ticketing application automatically integrates real-time inventory with the network problem data.

Network Inc. will ship next month its Paradigm trouble ticketing and inventory application to automate troubleshooting and problem escalation. The product will support IBM's NetView/6000, Hewlett-Packard Co.'s OpenView, and SunCon-

nect's SunNet Manager platforms.

"Paradigm can either notify a user or launch scripts that escalate problems to the appropriate service personnel, vendors, and managers," said Christopher Slatt, Network's president.

The application automatically integrates real-time inventory information with the trouble tickets using a cross-referential data model. Paradigm supports SNMP, SQL, and Posix.

The server software will cost \$9,950. Each client module is \$950.

NEC America will also ship next month its 13MS family of management software, which allows users of SNMP-based management platforms to manage NEC's I-Chassis WAN devices, modems, multi-access dial routers, Data Service Units, and Channel Service Units.

The software runs on Sparc workstations, providing node discovery, alarm and event filtering, MIB extensions, and customizable views and displays.

The 13MS software, including serial and TCP/IP interfaces and a relational database, will cost \$12,500.

Novell Inc. will ship by year end its Windows-based Hub Service Manager (HSM) application that gives users control of Hub Management Interface (HMI)-compliant Ethernet hubs from within Novell's NetWare Management System (NMS).

HSM enables NMS to discover and map hubs, offering a three-dimensional view of the backplane of each hub card.

The application provides performance statistics including collisions, alignment errors, and data-rate mismatch for each individual port. Users can check the status of each port, receive alarms in real time, and add users to a port.

HSM is priced at \$995. Call Network, in Bellevue, Wash., at (206) 646-1850. Novell, in Provo, Utah, can be reached at (800) 453-1267. NEC, in San Jose, Calif., is at (408) 433-1250.

Z-Code's Unix E-mail coming to PCs, Mac

BY CHERYL GERBER

Z-Code Software Corp., maker of a Unix electronic mail product, is now preparing to plow its way onto PC and Macintosh desktops with products due in mid-1993.

Like the current Z-Mail 2.1 Unix version, the coming DOS and Mac products will be configurable E-mail systems that handle multimedia documents and support standard graphical interfaces. They will also contain a spelling checker as well as prioritizing and sorting features, which let users sort messages based on multiple, customizable criteria simultaneously, said Dan Heller, Z-Code's president.

With these configuration options, users can write their own functions and attach them to filters or menus in a way similar

to Beyond Inc.'s BeyondMail; however, Z-Mail offers a broader set of rules, Heller added.

Users say the porting of Z-Mail to non-Unix platforms is appealing. "We have plans to integrate our PCs with our Unix network, so Z-Code's plan to integrate into the PC environment will come in handy for that," said Barbara Volk, manager of office systems at Northwest Natural Gas, in Portland, Ore.

The software's multimedia support is based on the Multipurpose Internet Mail Extensions (MIME) multimedia specification, which is being considered as an international standard. The product also supports Digital Equipment Corp.'s XMedia multimedia platform and Quarterdeck's Desqview/X Windows products.

Z-Mail supports drag and

drop in the Motif and Open Look environments. It also provides an enhanced scripting language that lets users build rules-based filters or customize the interface.

Z-Code's DOS version, expected in mid-1993, is designed to support mail application programming interfaces such as the Vendor Independent Messaging protocol set forth by Lotus Development Corp., the MAPI protocol from Microsoft Corp., and the XAPI Common Mail Calls. Heller said.

Z-Mail's Mac version, expected to offer the same features, is also due in mid-1993.



Z-Code's multimedia messaging system for Unix will be ported to PC and Mac platforms.

Z-Mail 2.1 began shipping in October. Z-Code Software licenses Z-Mail on a per-user basis at \$295 for a single user with volume discounts of \$150 per user for 100 or more users.

Z-Code, in San Rafael, Calif., can be reached at (415) 499-8649.

WordPerfect attracts users to 5.2 with DEC E-mail links

WordPerfect Corp. is making the move to WordPerfect 5.2 for Windows more attractive to network users by offering a free integration module for accessing Digital Equipment Corp.'s X400 mail and other DEC Teamlinks 1.0 services.

The add-on module, which

will be available next month, will allow users to access DEC's E-mail from within WordPerfect 5.2 for Windows and send messages to other enterprise network users via Pathworks or DECnet.

It also enables users to incorporate documents or parts of

documents into mail messages. Access to DEC's Teamlinks File Cabinet services lets users open, retrieve, find, and save documents stored on VAX systems. The File Open dialog box can display files stored in DOS or in a DEC Teamlinks File Cabinet. "Users select the Teamlinks

item from the pull-down menu and it prompts them through the mail process," said Shaun Sirland, a WordPerfect product marketing manager.

WordPerfect Corp., in Orem, Utah, can be reached at (800) 451-5151.

—Jayne Wilson

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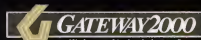
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Viewz enhances net access

WordPerfect users can manage documents across LAN

BY ED SCANNELL

WordPerfect for Windows users will soon be able to more easily create and manage documents across local and wide area networks without having to leave their application, thanks to a new workgroup offering from Gilbert & Associates Inc.

The company will ship December 1 a network-aware version of its Viewz graphical document manager for WordPerfect's Windows product.

With Viewz 2.2 for WordPerfect for Windows, users who have forgotten the name of a DOS file or directory residing on a server can still access that data remotely. To do this the company has combined Saros Corp.'s Mezzanine network engine and its own Viewz front end.

To locate and open a file, users can simply describe the file by author, title, personal or group keywords, or conduct a global search that queries all data fields.

The program's built-in templates let administrators make



To locate a file in Viewz 2.2, users can describe the file or conduct a global search.

WordPerfect forms available to all users, eliminating the need for them to memorize sets of keystroke commands to access various forms, company officials said.

Custom templates can also be added, allowing managers to better leverage previous work. The custom forms are available to all workgroup users from the Viewz File/New dialog box.

Administrators can also control users' access to data.

Version 2.2 features smooth

integration with Microsoft Mail, direct connection to company information stored on servers running SQL Server or dBase, and support for "redlining" products so users can compare and contrast any available version of documents.

Viewz 2.2 works with Novell Inc.'s NetWare 3.x or later; the Novell OS/2 requestor, Version 1.3; Microsoft LAN Manager 2.1 or later; and Banyan Vines 4.10 or later.

Viewz 2.2 for WordPerfect for Windows will sell for \$199 per workstation. The Viewz and Mezzanine bundle costs \$399 each for 50 to 99 workstations, and \$299 each for 300 to 399 workstations.

Gilbert & Associates, in Seattle, can be reached at (206) 287-3110.

Areal packs nine hard disk drives into disk array

BY MARK STEPHENS

LAS VEGAS—Take nine little hard disk drives, stuff them sideways into a single 5 1/4-inch server drive bay, add a custom controller, and you get Areal Technology Inc.'s new 1.2-gigabyte fault-tolerant disk array, which allows individual drives to be replaced on the fly with no loss of data.

Areal's AA9180 micro disk

controller uses a custom application-specific integrated circuit to divide data blocks into segments as they are written to the disks in the array.

Using parity information stored on one disk (under RAID 3) or spread across all nine disks (under RAID 5), the controller can reconstruct data lost if one of the drives crashes. It can also adapt if one of the drives is removed or replaced while the server is in operation.

This disk array technology is faster and uses only 11 percent of hard disk capacity for fault-tolerant overhead, compared with 50 percent for mirrored disks, according to Jim Snow, Allodyne's vice president of marketing and sales.

"The array appears as a single large SCSI disk drive to the server," said Eric Bush, Areal's vice president for distribution sales. "There are no vendor-unique drivers associated with this product."

The AA9180 disk array will ship in February for \$9,995.

Areal, in San Jose, Calif., can be reached at (408) 436-6800.

The controller can reconstruct data lost if a drive crashes.

array, which debuted at fall Comdex last week, contains nine 180-megabyte 2 1/2-inch hard disk drives configured as a single virtual volume under the RAID 3 or RAID 5 specifications.

An Allodyne SCSI-2 disk

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Apple LaserWriter

ETT readies LAN troubleshooting software

BY TORSTEN BUSSE

Start-up company Empirical Tools and Technologies Inc. is preparing to ship early next year a suite of network probe software designed to help administrators install and maintain networks.

ETT used the Interop fall show last month as a test site for its software, which lets managers generate test traffic, validate packet routes, and monitor the status of network devices. It is

slated to ship in the first quarter of 1993, company officials said.

"The intention is to automate troubleshooting networks by implementing a management-by-delegation process that makes it possible to isolate and correct network problems without human intervention," said Karl Auerbach, president of ETT, in Santa Cruz, Calif.

In late 1993, ETT will design command console software that can evaluate network data and, based on the analysis, issue

complex instructions using the proprietary NetScript delegation language, Auerbach added.

The language will automatically redirect traffic, address new devices, and handle routine administrative tasks without human intervention.

The command console software will run on an X Windows workstation supporting a variety of DOS and Unix-based probe software that use TCP/IP.

ETT can be reached at (408) 427-5280.

LAN Admin simplifies many network tasks

BY TORSTEN BUSSE

LAS VEGAS — ABC Systems & Development Inc.'s LAN Admin, introduced at Comdex here last week, aims to automate and simplify administrative tasks associated with Microsoft Corp.'s LAN Manager networks.

Especially targeted at the part-time LAN administrator who is pressed for time, LAN Admin makes it possible for administrators to perform tasks such as adding new users, applications, printers, and program groups in a matter of minutes, said Donna MacDonald, marketing manager.

"An administrator can set up 800 users in one afternoon, as compared to the several days it would usually take," MacDonald said.

Setting up a new user requires only the selection of a server and group; LAN Admin automatically sets up the user's directory, group membership, and access to applications. The product also configures Windows with the appropriate icons

and connection peripherals.

Supervisors can restrict access to elements of the Windows desktop, such as the Print or File Manager, and give users access only to functions they require for their work, regardless of the workstation they log on to.

The software also supports

Setting up a user requires the selection of only a server and group.

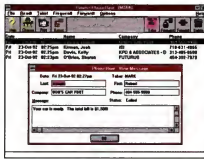
Product Spotlight

PhoneBase message center is tailored to WFW

Futurus Corp. next month will begin shipping Futurus PhoneBase, a phone message center package designed for Microsoft Corp.'s Windows for Workgroups.

The Futurus PhoneBase personal information manager is dBase compatible, allowing users to import data into PhoneBase files. Users can also browse Futurus PhoneBase records on any field, as well as generate phone message activity reports for any user on the network. PhoneBase records the name of who took the message, date of message, caller company, name and phone number, call status, and notes.

The package will be available in December for an expected price of \$99, the company said. (404) 392-7979.



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Circle 10 on Reader Service



LAN Talk / Paul Merenbloom

Workstation- and server-based backup deserve consideration

Selecting and implementing a backup system is a task that faces every LAN administrator. In a time when the LAN has become as crucial as the telephone, the wrong decision could mean lost credibility, lost revenue — or

even your job.

Traditional systems now have strong competition from server-based alternatives offering much faster backup speed and greater flexibility and control.

To illustrate the difference between workstation- and server-based backups, a 2.2-gigabyte Exabyte drive was used to back up 5 gigabytes of data. Using the

Cheyenne ARCserve (on the file server), it took just less than 6 hours. The same drive running Mountain's FileSafe software on a 486/33 workstation (with Ethernet) took more than 15 hours to copy the same data.

Using bus-mastering cards and 32-bit transfer modes, server-based systems offer high-speed throughput by transfer-

ring data directly from the disk controller to the tape's SCSI controller at the speed of the bus.

Workstation solutions, in contrast, are bound to the network speed and their slowest component (often the PC's I/O and/or tape drive adapter card). Also, these backups "drag" all of your data over the network, exposing it to potential cave-dropping.

The content and frequency of your backups can help guide the media choice and location of the backup system.

With gigabyte storage at megabyte pricing, consider using high-density DAT drives (that fit 8 gigabytes onto a single 4mm tape) to create full-image backups each day. Such backups reduce the chance of lost data due to damaged media when restoring files.

Consider, too, the expected growth of the LAN. What will your LAN's backup needs be in one year? Two? Five? Try to plan ahead. Changing the backup system should not be an annual event.

LANs positioned for significant growth should specify backup software that supports tape spanning and hardware that can accommodate multiple drives or employ an auto-changer.

Server-based products allow backup "queues" to be built, automating daily backup processing and enabling self-perpetuating backups to run unattended except for daily tape exchanges.

In just a matter of an hour or so, the LAN administrator can create a backup rotation that spans any number of days, allows backups to start at specified hours, and auto-repeats the schedule.

The additional RAM needed for server-based backups also helps system performance during nonbackup times by becoming part of the system cache.

Although short time windows and large capacities generally point server-based systems, administrators of small and midsize LANs may find workstation-based systems meet their needs and are better suited to their wallets.

Workstation-based solutions are well established and reliable. They do, however, require daily maintenance, expose the process to additional points of failure, and can introduce security risks.

Independent of the venue, there are key features you should look for in backup software. Among these, the software should be able to:

- support the backup and restoration of the bindery (or equivalent),
- create a database of files backed up each day,

• back up multiple servers and support a "quick find and restore" feature,

- support an "auto-purge" option that follows the tape rotation (to keep the log files from eating up disk space); and
- support a variety of media types.

Inevitably, as networks grow in size and capacity, workstation-based solutions will become less and less effective.

No matter what choice you make, remember, the data on your LAN is one of the most valuable corporate assets. Protect it well.

Paul Merenbloom is manager of information technology at Otsuka America Pharmaceuticals, in Rockville, Md. Send comments to him via CompuServe at 70743,3524 or via MCI Mail at Paul Merenbloom.

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You lose a few million dollars here, a few hundred thousand customers there, and the next thing you know, it's time to look around and blame someone.

But it's understandable.

Computer retailers have learned this advanced form of finger pointing from the experts: the big computer companies. Whenever *they* have a problem, they simply look around, point at the retailers and say:

"It's your problem."

For example, if you have a problem with the price, you have to go to multiple dealers to wheel 'n' deal to get the lowest price.

If your system has problems, you most likely will have to go to the dealer to get it fixed.

If you buy a computer and have problems with compatibility, peripherals or software, you're often forced to go to the dealer. Somehow he's supposed to fix it.

Well, dealers are hardly the ones to fix problems anymore. Some can barely fix themselves. In fact, this past year, they've been going out of business faster than you can say "Pass the buck, please."

Whatever happened to a *manufacturer* being held directly responsible for their product and their customers?

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SURGERY
IT AIN'T.**



Dell Computer must think someone within the market for a 386SX notebook has had a hiccup. Because they would have no better way to lose a Dell 386C with a hardwired fix less than the price of a Toshiba T1400SL.

As participating Sun-Rayco Electronics dealers, the Toshiba T1100SE, which is \$1,995, is now \$1,300* less than the price Dell quotes as best at Appleton. Though Dell has recently lowered their price, they're still \$1,100

The Toshiba weighs 20 lbs., while the Dell checks in at a hefty 21 lbs. It's also 25% smaller than the Dell. And the Toshiba RAM

As for motor movement, Tsubota has several machines that offer resistance. Nitroflex TFF (nitro flex) works across, while the last Delt (one after another) and positive energy LCDs.

Actually, it's only Dial's right. If you want to spend as little as \$5 on a brilliant, low-capacity notebook just to get some notes, a *Journal* like a *Journal* might be a better choice than you should buy the Dial.

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*Survey was independently conducted by Reliability Ratings, Needham, MA. The data is quoted from a 40-page report available for purchase through Reliability Ratings (617) 444-5755. Reliability Ratings, the research company, is not affiliated with Dell Computer Corporation and does not endorse its products.

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TO THE EDITOR

There's a worm in the apple

I see that Apple, as well as many of the software companies that produce software for the Macintosh, have discarded the philosophy that has given the Mac such a loyal following. I remember the days when you opened a new software package and spent a few (fun) hours discovering how to use it. The manual was considered a last resort as well as an admission of defeat. Well, times have changed and we expect our Macs to do more for us. Now, not only are software manuals a must, but the user is often at the mercy of technical support. The final insult comes after you hack your way through the automated phone system and you finally reach a "real" person who tells you that buying and registering your software is not enough. You must now pay for a technical service contract.

Wouldn't it be easier to go back to school, learn programming, and write your own programs for the PC? By the way, Microsoft Windows has a 24-hour technical support line. What a concept!

Zena Mercer
Multimedia Health Promotions Project
University of Texas Medical Branch
Galveston, Texas

You say site license, we say ...

InfoWorld reported in the November 2 issue that Lotus will now sell site licenses to its customers (page 3). The term "site license" carries different meaning for different people, and some

Some readers may have misunderstood the term 'site licenses.'

readers may have been left with the incorrect impression that Lotus will sell customers the right to install products on an unlimited basis. We did announce a volume purchasing plan under which customers can purchase the right to install a Lotus product on a specified number of machines or authorize a specific number of users to access the application concurrently. Some readers may consider this to be site licensing, but Lotus does not. I hope this letter clarifies that point for readers who may have been left with the wrong impression.

Kathryn Roy
Director of Marketing
Lotus Development Corp.
Cambridge, Mass.

Xtreme's future

Regarding the two recent criticisms of XTREE for Windows raised by Mike McConkey and Chin Kim in their recent letters to InfoWorld (October 26): Both mentioned specific features they wished added to the program. While the current Version 1.0 has been favorably reviewed as "the most powerful solution to Windows file man-

agement available today," we welcome this kind of feedback. It goes a long way in helping us create even better products for our users. In fact, many of the features mentioned are already being added in XTREE for Windows 1.5, announced last month.

We are troubled, however, by misconceptions regarding DR DOS compatibility. XTREE for Windows is fully compatible with DR DOS. It is the XTREELink utility, a file transfer program included with XTREE for Windows, that is not compatible with DR DOS. Novell is working with us to resolve this problem as soon as possible. The problems Mr. McConkey experienced, we believe, are not related to DR DOS.

The AutoCAD viewer mentioned by Mr. Kim will be available next month. It will be shipped—at no charge—to everyone who returns the request card included with the product. Unfortunately, Mr. Kim chose to return his entire product.

Thank you for allowing us this opportunity to respond.

Andrew Reichert
Vice President
XTREE Co.
San Luis Obispo, Calif.

The right links

When I read the October 12 review of XTREE for Windows, I became very frustrated by the attempt to compare packages that should not be compared. I am referring specifically to the comparisons made between the XTREE product XTREELink and Lap-Link Pro. A proper comparison would be XTREELink to Traveling Software's WinConnect. XTREELink is basically a two-machine network. When I use XTREELink, I can perform file transfer with whatever file management package I choose, or I may directly run virtually any application program across the wire. All this from a command-line installable "network."

Mike Karas
Micro Resources
Simi Valley, Calif.

IBM: Are you listening?

IBM's new line of ValuePoint and PS/2 systems preloaded with OS/2 is unacceptable. I recommend computer purchases to libraries across the Commonwealth in the Access Pennsylvania library program. Access Pennsylvania is a union library card catalog on CD ROM containing the holdings of 872 of Pennsylvania's school, public, academic, and special libraries. The card catalog is currently installed in 1,078 sites.

Since the system's inception in 1985, more than 2,000 IBM PCs and PS/2s have been purchased by our libraries. In addition, IBM has recently decided to discontinue extending its National Educational Price to our public libraries, after having done so for a full year. IBM claims that public libraries do not fit its definition of educational agen-

cy. Hear me clearly, Big Blue: Public libraries are educational agencies. You

will not shove OS/2 down our throats. James S. Fogarty, Ph.D.
Director of Curriculum & Technology
Consultant
Access Pennsylvania Program
Marlin, Pa.

Cultural literacy

I have been a reader of InfoWorld since the days of news about Apple II. As a user of the Macintosh, the computers have gotten fancier and the technology has become more sophisticated, your magazine seems to have completely lost touch with reality. Doesn't anyone on your staff have a shred of cultural literacy?

In addition to the Harry Truman ad for reprints, which seems to say "When the news doesn't say what you want it to, we'll change it for you," and the Enterprise Computing ad that urges us to "Merge," while the road ahead is blocked by a "Road Closed" sign, there was this item in August 3 Test Drives. The writer describes the Logitech Trackman as looking "like something designed by Frank Zappa." Wright was famous for designing beautiful things that didn't work too well. His chairs were uncomfortable, his roofs leak, his buildings have no basements, and he didn't believe in ventilation. Beautiful, yes. Functional, well, maybe. Raymond Loewy, who gave us the famous Coke bottle, would have been a better association. Of course, your advertisers don't seem to be much more culturally literate. One uses Mr. Magoo as a "spokesmodel" for a brand of monitors known for their fuzzy displays. A project management software publisher uses the Empire State Building as an example of a well-run construction project. The Empire State building was constructed in 1931—using slide rules, pencil and paper. Despite the lack of any project management software, the building was completed in record time. Please, read something besides computer magazines once in a while.

Steven Krish
gsf Engineering
Beverly, Mass.

A teachers' response

In response to Mr. Heutte's letter concerning Channel One broadcasts: As a teacher and computer coordinator in a high school that has the Channel One system, I would agree with Mr. Heutte—if we lived in an "ideal" system. Unfortunately, we live in the real world, with real-world problems and real-world budgets. There are trade-offs to everything. The trade-off for having a schoolwide television system is an exposure to a few more ads. Maybe we should be teaching "critical" viewing, listening, and thinking as part of the curriculum for these young people who are exposed to thousands of ads every year. We have found the system to be a wonderful addition to our school, and as teachers we are discovering new uses for it every year.

James K. Hunter
Fergus High School
Lewistown, Mont.

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From the Editor / Ed Foster

Workstation vendors should quit racing with blinders on

After the recent round of workstation one-upmanship from Sun, DEC, and Hewlett-Packard, it finally occurred to me what the workstation wars remind me of.

You know that horse race game at the kiddie carnivals where you flip a pinball up and advance a certain number of lengths depending on what hole the ball drops through? That's the game that Sun, HP, and DEC—as well as IBM, SGI, and others—have been engaged in these last few years with their Unix machine offerings.

If you've ever been a spectator at one of those races, you know that the horses' relative positions are totally meaningless—until the very end. At the same instant that one horse bolts ahead, another ball is already dropping somewhere else. The lead horse will be passed.

Unlike this carnival game, the workstation wars don't have a finish line. Arbitrary though it might be, someone is declared the winner, receives a stuffed miniature teddy (it's really a technical marvel how they can make those things out of so little substance these days), and goes home happy. If you lose, you can keep playing with the certainty that there's a mini teddy with your name on it, too.

For our valiant Unix warriors, however, there is no such clear triumph. Whenever one of them thinks it has taken a lead, it is quickly disabused of the notion as competitors race by with yet higher SPECMarks and better price-performance ratios.

On the surface, this crazy horse race appears to be a good deal for the workstation companies' cus-



tomers. After all, as long as they keep pushing each other to offer more bang for the buck, we all benefit, right?

I'm not entirely convinced we do. And when I say "we" here, I'm referring to mainstream business users of computing technology, rather than the academic and engineering worlds, the traditional customer base for Unix workstations. We, by the way, are the mini teddies these guys are playing to win, because each one desires to be the workstation vendor that wins it big in the business market.

For all their battling, though, the vendors don't seem to be getting far. The problem is that better price-performance isn't enough. Workstation proponents have for the last several years talked excitedly of the day when sub-\$5,000 RISC machines would compete on an even basis with high-end PCs. Now those sub-\$5,000 workstations are finally on their way, but they're coming into a market where 486 machines are selling for less than \$2,000. So price alone is not going to get many PC customers to switch over.

That's not to say that there's no interest among business users in Unix workstations. A just-completed survey by *InfoWorld's* marketing department found that 58 percent of our readers have plans to buy Unix workstations this next year. Given that *InfoWorld* readers share the mission of finding more competitive ways to use all types of computing technology, that's not a surprise. Unix workstations and the standards that they've helped create—TCP/IP, SNMP, etc.—clearly

have a lot to offer when it comes to creating multiplatformed, networked environments.

Despite this potential, I think it's a no-win horse race. In their drive to beat each other in terms of SPECMarks, the vendors are losing sight of what their potential customers in the PC arena want even more than a few more million instructions per second. We want a platform we can get from more than one vendor.

This latest round of announcements illustrates the point: Sun, DEC, and HP are each offering their own RISC architecture and their own flavor of Unix. Yes, each proclaims its platform to be an open standard that others can license and produce as well, but you don't see many taking them up on the offer. After all, it seems obvious any vendor adopting another's standard will be forced to lag behind the standard-setter's pace.

Sun, for example, has been promising for years that there would be a big market for Sparc clones, but who other than Sun has really made a significant dent with Sparc machines? Sun's not going to let another Sparc vendor run in front of it. And it's unlikely that DEC's Alpha or HP's PA-RISC chips will be made available to anyone who could seriously threaten to outrun DEC or HP.

It's time for all the workstation vendors who are serious about expanding their mainstream business market to accept the fact that no one vendor is going to dominate the field anymore. If they can put aside their horse race long enough to work together to devise a true standard platform, they can all go home with a grand prize. There's more than enough of us mini teddies to go around.

Peer to Peer / Dennis Koenig

Look on the Disabilities Act as an opportunity rather than a burden

Dennis Koenig is the manager of the Appellate Automation Support Program, an auxiliary unit of the Appellate Divisions of the Supreme Court of the State of New York. He welcomes comment on CompuServe at 70743.3072.

Until recently, I was "blindless." I was ignorant of the issues facing blind people in the modern automated work place. That began to change rapidly when a talented woman applied for a job in our information center. Oh, did I forget to mention she was totally blind? Sorry. It doesn't matter unless you are blindless like me.

The Americans with Disabilities Act (ADA) says I must hire her if she is the best qualified candidate. It also says I must provide "reasonable accommodations" to eliminate barriers between her and the "essential job functions."

Can a blind person really function as an administrative analyst in a high-tech environment? I learned that she can "do it with her eyes closed." My greatest threat was the blind woman with the audacity to say she could do the job. Her wisdom, experience, and interpersonal skills sold me, not just on her qualifications for the job, but on the realistic potential that my office could create barrier-free computer systems.

The ADA seems to call for unequivocal

removal of all barriers to the disabled. This applies to all barriers against access to goods, service, employment, and information. If you make something available to the public, or if you employ more than 15 people, then you are subject to the provisions of the ADA. Some may cry, "It costs too much. It will disrupt the work place. Our people don't know how to relate to disabled people."

to millions of skilled, talented, hard-working disabled people. If you have an entrepreneurial spirit, how does it sound to open your market by 43 million users?

Unfortunately, technology for the disabled suffers from a lack of attention to standards, interoperability, and barrier-free thinking in systems analysis and design. Too many products are based on

the assumption that all users have eyes, ears, hands, feet, and "normal" mental resources, and can sit in a chair all day. Under the ADA, we don't have the right to continue such trampling through the garden of human experience.

Barrier-free technology will not arrive on our doorstep tomorrow morning simply because Congress ordered it. Still, with the speed of technological advancement, we can make a big difference in a short time. Where do we begin?

First, learn what the ADA says, what it means, and how it applies to you, your

work environment, your company, and your products and services. Then read up on adaptive aid technology. Visit one of the scores of adaptive aid technology centers around the country (it appears that every state government has an agency that can help you find them). For expediency, I turned to these CompuServe forums: IBM Special Needs Forum, the Issues Forum, Handicapped User's Data, the Legal Forum, and the Disabilities Forum.

Next, we must get very serious about standards and interoperability. We must get in touch with advocacy organizations for the disabled and with the suppliers of adaptive aid technology. Industry standards makers, associations, and committees must include barrier-free thinking in all their work.

It's as simple as putting disabled people in the committees and including them in beta test populations. Talk to disabled people. They know far more about it than anyone else. And how about a column on this subject in *InfoWorld*?

"Peer to Peer" gives readers a forum for discussing computing and management issues. Send submissions to Rachel Parker, Opinions Editor (MCI Mail 340-4371). Submissions can also be faxed to (415) 358-1269.

From the Ether / Bob Metcalfe, Publisher

Are there any COBOL users of the fifth kind?



InfoWorld readers are taking their personal computer networks into the information systems mainstream.

You are going beyond the personal productivity applications that fueled the PC revolution. You are going beyond the MIS applications that LANs have made possible over the last decade. And, even as we speak, thanks to the latest client/server developments, you are getting to the heart of the IS matter, building competitive advantage with mission-critical applications.

Now, even if I'm only half right, this means that one of you will soon unplug the last mainframe. Please remember to turn off the lights, and don't trip coming down off the raised floor. And send us a photo.

Which leads us to the subject of ... Cobol.

PC COBOL. Wasn't Cobol one of the big three mainframe languages of the 1960s — Fortran, Cobol, and Basic? Wasn't Cobol — Common Business-Oriented Language — at one time the most widely used language for commercial data batch processing using 80-column cards and line printers? Wasn't the PC revolution all about overthrowing Cobol? Aren't the people who once wrote Cobol all in well-deserved retirements?

Well, clearly, I'm a PC bigot. In 1966 I dropped mainframes and 029 card punches for interactive time-sharing minicomputers and Model 33 Teletypes. In 1972 I gave up time-sharing for PCs. I never wrote a line of Cobol.

I learned about PC Cobol at the recent InfoWorld Editorial EXPOsure from Micro Focus of Palo Alto, Calif. ([415] 856-4141). This company's very exciting products are not, as the name might suggest, small computers. Micro Focus makes Cobol for PCs. After talking with the

folks at Micro Focus and seeing their chic peer-to-peer, multipatform version, I'm giving Cobol another look.

FIVE KINDS OF COBOL PEOPLE. It seems to me there are five kinds of people who ought to be interested in Cobol. First: Those content to run Cobol on their mainframes. Such people do not read InfoWorld, so not another word about them.

Second: Those who use something like Micro Focus Cobol on their PCs to develop and maintain the many time-tested Cobol applications that run on their mainframes.

You should see the Cobol-based client/server application development environments.

Third: Those whose Cobol applications run partially on mainframes and partially on networked PCs. I think IBM calls this "cooperative processing."

Fourth: Those who are using Micro Focus Cobol to move their mainframe Cobol applications down onto PC networks. This is called downsizing, and the last mainframes will be unplugged by one of these Cobol users.

Fifth: Those who have no mainframes but who use Cobol in their client/server implementations of mission-critical applications. This Cobol user is the most fascinating. All the others can say they use Cobol now because they have in the past, and they can't just walk away from that legacy. Cobol users of the fifth kind choose Cobol because it is better than

the alternatives for developing commercial applications. Better than C++.

COBOL USERS OF THE FIFTH KIND. Are there any Cobol users of the fifth kind? If so, please report in. If not, then I think some of you should see the Cobol-based graphical client/server application development environments running under various combinations of DOS, Windows, and Unix.

But, you say, Cobol is old fashioned and C++ is modern! Excuse me, but C++ is little more than assembly language, roughly BCLP plus Simula67 from 25 years ago. Further, the folks at Micro Focus showed me that their Cobol is now object oriented, so there. Maybe they should call it Cobol++.

So, you might ask, if this Cobol stuff is so great, why isn't it selling like hotcakes? Oh, but it is.

Micro Focus, which holds about 70 percent market share in this PC Cobol niche, is a \$100 million software company. Sales are up more than 20 percent from last year, and operating profits are about 30 percent of sales. Micro Focus is one of the few companies as profitable as Microsoft (which, by the way, sells Micro Focus Cobol).

And speaking of Microsoft, this all reminds me of my last trip up to Redmond, Wash. There I was, sitting next to Bill Gates, being shown a pretty interesting application development environment called Visual Basic, based on Basic another programming language from our glorious but remote past.

So unplug your mainframes ASAP, but don't count Cobol, Basic, and maybe even Fortran out just yet. What do you say?

Bob Metcalfe is publisher of InfoWorld. He has written *Earthlink* at *News, PHN* in 1973 and founded 3Com Corp. He receives E-mail via the Internet as *Bob_Metcalfe@InfoWorld.com* or at 524-1127 on MCI Mail.

InfoWorld encourages both formal and informal contact between its staff and its readers, as well as offering services for buying reprints, searching back issues, and so forth. When sending letters for publication, please mark them clearly: Letters to the Editor.



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EXPERVISION

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If you're looking
for a computer
that will grow
with your needs,
there are basically
only two ways
you can go.

The hard way.



Add networking card, reconfigure your system. It's done, files are saved, it's ready to go.

You may have to add a card. This means going through the long, tedious process of reconfiguring your system. On a Mac, you just plug in a cable.

Upgrade your memory, reconfigure your system. Add memory to a Mac, and it reconfigures itself automatically. But add memory to a PC, and you'll almost always have to run a setup program to configure the new memory—or the computer won't know what to do with it.



Add Windows, buy a new PC. Most PCs in use today weren't designed for graphical computing. So if you want to run Windows, you may have to buy a new computer. Why not consider a Macintosh and avoid all the problems on this page forever?



Buy a mouse, reconfigure your system. If your system doesn't come with a mouse, you'll need one.

But first be prepared to install and configure a special software driver. (No need with a Mac—you just plug it in.)

Play and record sounds, reconfigure your system. Multimedia promises to be the future of computing. But most PCs aren't ready for it. So if you want to work with sound, it'll cost you time and trouble—not to mention money. (On a Mac, sound is built in.)



Call for help. Write a check. There is one way you can expect a complicated PC—have somebody else do it for you. Over time, of course, that can wind up costing you more than the PC.



Add peripherals, reconfigure your system for each one. Want to add a CD-ROM or hard disk drive? Then prepare to spend hours installing cards, fiddling in and soldering files—for each one. With a Mac, you can add up to seven peripherals by simply plugging them in and clicking a button or two.

Add printers, adjust DIP switches. Hooking up a printer seems easy. Until you set your DIP switches, install your driver, locate your Windows desktop, make an error and start all over again.



Expand your PC, take two aspirin. Alternatively, if you want to expand your computer's capabilities by adding extra devices, the more instructions you slog through and asitches you fiddle with the more time it will take. And the more pain reliever you'll need.

Change monitors, reconfigure your system. Add a new monitor, and you'll have to reconfigure your entire system—or your monitor could look like this one. A Mac recognizes a new monitor and adjusts to it automatically.



Whoops! When you add something to an ordinary PC, you may have to "reconfigure" your system—a process of hardware and software adjustments, which can be complex, tedious, and take up hours of your time.



Manual labor. Software like Windows purports to make things easier. And the reality is, you'll still spend hours reading manuals just to make it all work—time you could spend doing more useful things with your computer.

On a typical PC, even adding a simple hard disk can be extraordinarily complicated. You'll probably have to "reconfigure" your system—the time-consuming process of telling your computer what pieces you've added. You may have to edit complex CONFIG.SYS and SYSTEM.INI files, install special device drivers and fiddle with DIP switches. And, of course, building even a basic network is extremely difficult—what with installing

The easy way.

Macintosh is designed to make it easy to grow. Networking and sound support are already built in. File sharing and multi-media capabilities are standard. So is support for up to seven peripherals. Which means you can add everything you are on the other side of the Macintosh IIx without using up a single expansion slot. Leaving room for things like an accelerator card, an Ethernet or token ring card or other cards that allow you to customize a Mac for high performance or specialized tasks.



cards and networking software. An Apple Macintosh, on the other hand, knows when you've added a hard drive. Installing a CD-ROM drive or scanner is a matter of plugging in a cable and clicking a couple of buttons. Even installing a network requires nothing more than plugging one Mac into another. It's just one more example of how a Macintosh works in a simple, logical way. So you can, too.



If you know how to use a plug, you know how to expand a Macintosh.



This Macintosh Plus has built-in monitor support for up to a 14" color monitor. Buy a card, and you can add a second monitor—significantly enlarging your desktop work area so you can move documents, files and folders across both screens.

You can easily record sound into every new Macintosh computer. Most even come with a microphone.



Plug in an AppleCD 300 CD-ROM drive, and you'll have virtually unlimited hard drive storage via removable 44MB or 800MB cartridges.



Plug in an AppleCD 300 CD-ROM drive, and you'll have access to huge libraries of reference sources, fonts, clip art and video images on CD. (It even supports Kodak's exciting new Photo CD technology.)

A Mac gives you professional-quality documents even if you're on a student budget. Just plug in an Apple StyleWriter™ printer.



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Plug in an Apple LaserWriter IIx, and everyone on your network will mutually be able to take advantage of the Apple PhotoCatalyst™ technology that creates 800 dpi printers creating thousands more—far spectacular-looking documents.



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Adding a peripheral to a Mac is as easy as using one. Plug it in, click a couple of buttons and get back to work.

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However, there is little an IS manager can do to prevent someone from peering over the shoulder of an authorized user or making a copy of a printout. Unfortunately many users don't think much about the value of the information with which they work.

Take a look around. Do staffers leave their workstations logged on, or while they're out to lunch? Do they share passwords? Do you wipe hard disks clean when a computer is transferred to a new employee? Has your company instituted a comprehensive data protection program that educates users to the risks of unsecured information and the ways to protect it?

It's important to encourage responsible use of corporate information, says Larry Seibel, information security manager at The Huntington National Bank of Columbus, Ohio. "The outside threat can be easily controlled," he adds, but the internal threat that comes from misuses and human error is much greater.

Accidental destruction of data is the biggest threat to enterprise computing, asserts John Worthen, president of Pyramid Technologies, a Rocky Hill, Conn., publisher of security software. He estimates that at least one of every 500 PCs suffers some kind of data loss every day. A comprehensive security plan can play an important role in reducing these incidents, he says.

Data corruption is potentially worse than data disclosure. Although the publication of confidential information can cost the company millions in lawsuits, such judgments are rare. Damaged data, on the other hand, occurs frequently and can cost thousands of dollars to reconstruct. Worst of all, maliciously altered data can take months to detect and lead to bad business decisions and irrevocable actions that might alienate customers forever. Although both federal and state laws regarding unauthorized access have been beefed up in recent years, perpetrators of data crimes are rarely prosecuted. Without witnesses or telephone records, unauthorized access is difficult to prove ("someone else used my ID"), and companies don't want the public to know their systems are vulnerable.

After months of complaints from customers, a network administrator for an East Coast metallurgy company, who insisted his name not be used, discovered that a disgruntled employee had altered records so the system would generate delinquency letters even when accounts were current. No money was stolen, but the loss of goodwill among the company's customers was immeasurable. Like so many other hacking incidents, no criminal charges were ever filed.

PASSWORD PROTECTION. How do unauthorized users gain access to sensitive areas of computer networks? The No. 1 way, say security analysts and IS managers, is through the sharing of passwords. Despite all the scolding by IS folks, users continue to thwart security efforts by sharing passwords, leaving log-on information in their desks, using the same password for every system, or picking obvious passwords.

"I don't like sharing passwords and IDs and not being able to," says Linda Deinberg, a network manager for Fujisawa Pharmaceuticals, in Deerfield, Ill. It's a problem that persists no matter how much her company tries to educate users, she explains. Deinberg adds that she frequently finds that users are thwarting her attempts to make networks secure

by keeping passwords in obvious places or by allowing several workers to access an application from the same station without a separate log-on for each.

She adds that users frequently complain about the number of passwords they need to remember. It's not uncommon for users to enter different IDs and passwords for their networks, applications, E-mail, and mainframe systems. And often those passwords change every 90 days.

"It is realistic to ask users to keep track of all these passwords?" an IS manager asks. "I have trouble remembering my phone number."

Carelessness isn't the only way passwords get stolen. Determined hackers have used elaborate cons—similar to those of credit card thieves—to gain access to corporate networks. An IS manager at a San Francisco-area firm tells of telephone callers identifying themselves as "systems" personnel, telling users the network is frozen and their ID and password were needed to

to prevent eavesdroppers from obtaining passwords, says Chris Sontag, NetWare 4.0 product manager, in Provo, Utah.

Network managers can also take advantage of third-party products, such as RSA Data Security Inc.'s Mail Safe utility, which adds public and private key encryption and authentication to messages and files. RSA (also the name of the encryption technique that allows users to exchange encrypted information without exchanging passwords) has been, thus far, an unbreakable encryption algorithm and is used in Lotus Notes and will be included in the upcoming NetWare 4.0.

RSA is so secure, claims Jim Bidzos, president of RSA, that users will be able to create a single password and use it forever.

CHANGING BEHAVIOR. Although technology can make networks secure places to keep data, that data won't be safe if people don't use the security features.

LAN security recommendations

Get management support for a comprehensive computer security plan.

Change user IDs and passwords regularly.

Don't let employees share passwords or user IDs.

Back up LANs daily and store the data in a secure place.

Audit all systems on a regular basis.

Keep protocol analyzers and other monitoring tools under lock and key.

Encrypt data sent over public networks.

Encourage users to be responsible for information they use.

clear it. This firm was fortunate: its telephones are equipped with displays that identify callers, and only a handful of users were fooled.

Passwords can also be debugged from memory, captured by keystroke utilities, or gleaned through the use of a network protocol analyzer. In fact, according to Bob Bessin, manager of business development at Network General Corp., in Menlo Park, Calif., any PC with a network card can potentially eavesdrop on all the traffic on a network segment. "Data is out there on the wire," he explains. "Anyone who can get to the wire can get to the data."

BEHIND-UP SECURITY. Whether the danger is real or imagined, companies are turning to technology to beef up LAN security. Some methods are obvious, such as using dial-back modes for remote access and restricting the time and place of individual sign-ons. Others are more esoteric, such as public and private key encryption that scrambles data so only the recipient can read it and authentication devices that ensure the user logged on is really who he or she claims to be.

Network operating system publishers are also taking steps to tighten the security of their products. Novell Inc., for example, plans several enhancements to NetWare's security in the upcoming Version 4.0. Most importantly, NetWare will gain the capability to manage users on different servers simultaneously, without cumbersome updates on every server, and add sophisticated encryption

According to Novell's Sontag, many network installations implement only a small fraction of the security available in NetWare.

NetWare's security is fine, says Deinberg, but things such as time and station restrictions are "just too much hassle to impose on end-users." It's not realistic, she says, to expect that users will always be sitting at their desks or just use a system between 9 a.m. and 5 p.m.

IS managers we talked to reported few attempts by hackers to breach their systems and said they were able to quickly stop them from gaining access, mostly through physical blocking. It's easy to stop most hackers, Huntington's Seibel says. Other IS managers agree that hackers dialing in aren't the threat they once were. Instead, they say, the biggest risk to corporate data walks in the door every morning. And it's not always a deliberate threat.

"Our biggest security threat is probably using intentional acts by employees," says John Copes, asset protection consultant for Cigna Corp., an insurance company in Windsor, Conn.

IS managers cite instance after instance of employees destroying data, altering information, or using confidential materials for personal gain. A major New York bank lost millions of dollars of business when a disgruntled employee, passed over for a promotion, tossed a file server containing the records of an entire department into the East River. A bond trader embezzled \$3.5 million from his firm using a PC to skim fees from accounts. Again, no charges were ever

filed, though the employees were dismissed. Most companies believe the disclosure of these crimes will hurt their business and drive customers away, says Daniel Faigin, chair of the Association for Computing Machinery's (ACM) Security Audit and Control Interest Group, a New York-based nonprofit organization that promotes scientific and educational use of computers.

IS RESPONSIBILITY. How does a network administrator beat this kind of activity? Should it even be the job of IS people to worry about it? It's not easy, but the one theme that seems to be embraced universally is user education and a company-wide recognition that information and the systems that handle it are valuable assets and should be protected.

"People need to be aware of the value of their data," says ACM's Faigin, whose comments were echoed by every IS manager we talked to. "You wouldn't leave your car or house unlocked," he points out, "and you wouldn't leave your data unprotected," but that's exactly what users do with their data."

Many companies now prepare extensive materials that explain the value of information and proper techniques for its safekeeping. At Huntington National Bank, for example, employees get frequent presentations on information protection booklet, and a video. The materials stress the value of corporate information and try to raise overall awareness of security risks. Huntington takes a drastic step toward network security by limiting or prohibiting users from installing their own software. The bottom line, says Seibel, "if you have access, you have responsibility."

ESTABLISHING PROCEDURES. Once users start thinking about security and the value of corporate data, a real security program can be implemented. The ACM publishes a free brochure titled *How to Develop Your Computer Security and Contingency Planning*. (Contact ACM at P.O. Box 39110, Washington, DC 20016.) The brochure breaks down security risk areas and gives numerous tips. Among them: Change passwords frequently, make backups, use encryption on sensitive data, and record violations and attempts at unauthorized access.

IS managers agree that it's crucial to disable the account of anyone who leaves an organization or takes an extended vacation, but they say that personnel departments frequently don't inform IS of staffing changes. LAN administrators should immediately change all supervisor passwords whenever someone leaves the department.

Desktop utilities can help users protect the network and their own data as well. Screen savers that require a password to unlock the application let users leave their desks without manually logging off the network, while many security-oriented shells prevent users from accessing or even seeing programs they're not authorized to use.

Once a security plan is active, it's also important to monitor its performance. Auditing is essential, security consultants stress, and should be performed by personnel other than the IS department, since it's the network manager's procedures that are under the closest scrutiny.

Ultimately, a good security plan can do only so much. Until users recognize the value of their data and accept means to protect it, we'll continue to hear of information crimes.



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Display	10.4" Active Matrix Display 256 Color Screen	9.5" Monochrome Display 64 Grayscale Screen	9.5" Monochrome Display 64 Grayscale Screen
Battery Life*	2-4 Hours	3.8-7.5 Hours	4-10 Hours
Weight	7.6 Lbs. with Battery	6.5 Lbs. with Battery	5.9 Lbs. with Battery
Warranty	3 Years (International)	3 Years (International)	1 Year (International)
Price**	\$4,350	\$2,750	\$2,375

*Depending on usage and configuration. **MSRP Dealer prices may vary.

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Use it wherever

ENTERPRISE COMPUTING

As PC LANs become home to more and more mission-critical applications, the integrity and security of the data on these networks becomes increasingly important. Network security policies and technologies are receiving increased scrutiny in corporate IS departments across the country.

Networks bring more information, with fewer controls, to more people than ever, which can lead to theft, corruption, or disclosure of sensitive or private information.

It is one of the great paradoxes of computing: Networks are put in place to allow workers to share information, yet one of the first features activated in any network is access control. Network managers spend hours every month updating IDs, creating and removing access rights, and reviewing network activities to make sure unauthorized users haven't gained access. It's almost Orwellian: Freedom is slavery and what's public is private.

Mention network security and most people think about teenage hackers and industrial spies eavesdropping on corporate secrets. The reality is quite a bit different — the real threat is more often than not a company's own employees. Hackers and spies are rare, and the information that needs protecting the most is usually personal information about a company's customers and mundane things such as corporate credit card numbers.

The problem has been amplified recently by the proliferation of LANs and client/server computing. LANs are inherently less secure than traditional mainframes for several reasons, security experts say. First, both Ethernet and Token Ring networks send all data, regardless of the intended recipient, to every station on a network segment. It's up to the station to accept or forward the packet to the next user. With tools such as protocol analyzers and debuggers, anyone connected to the network can potentially eavesdrop on its traffic.

LANs and client/server applications also expose increasing amounts of confidential data to potential theft or disclosure. User workstations are growing more powerful and performing more of the processing that was once an exclusive province of the mainframe, which opens new avenues for those determined to get at information. Instead of the tightly controlled terminal-based applications, clerks, secretaries, and data entry personnel are using broad-based microcomputer programs such as spreadsheets and

LAN security

Protecting corporate assets

BY DOUG VAN KIRK

databases to work with corporate data.

Networks also amplify the actions of users. What was once a simple mistake (such as accidentally deleting a file) on a stand-alone PC can be a disaster that stops work throughout an entire department if it occurs on a LAN. Acts that are merely experimental on a desktop PC, such as changing a style sheet or printer driver, can wreak havoc on dozens of users when network software is involved.

Yet it's impossible to lock users out of every directory. Many LAN applications (such as word processors and E-mail programs) won't work unless the user has full privileges to read and write in a network directory, even if the data files are stored on a local hard disk. That's because temporary files, custom dictionaries, and configuration data are stored on the network.

Finally, networks can be harbors for illegal activity and pirated software, exposing your company to another risk. Products such as Microsoft Corp.'s Windows for Workgroups allow more people to share data more easily than ever and even create their own network applications. This has many network managers petrified because it frees both application development and data propagation from many of the centralized controls that exist in traditional IS departments and client/server networks.

AT RISK. Whether it's medical records, financial statements, legal documents about customers, or the home phone numbers of congressmen on your payroll, the confidentiality and validity of corporate information is paramount. The risk of a lawsuit or damage from mishandled proprietary information, whether accidentally or intentionally disclosed, is significant. In well-reported incidents earlier this year, hackers broke into Equifax, an Atlanta-based credit bureau, and used the credit card information they obtained to make fraudulent purchases.

Don't think that can't happen to you. Any company that keeps information about its customers is vulnerable to this kind of intrusion. But how does a company secure the data that needs protection when that same data is needed by workers to process orders, answer questions, and make decisions?

The key is to distinguish between authorized and unauthorized use. From a systems standpoint, it's easy to control and monitor who uses what data, which is an effective deterrent to mischief



Now, other word processors have something they never had before.

Features	Ami Pro 3.0	Word for Windows 2.0b	WordPerfect [®] for Windows 5.1
True WYSIWYG in all views eliminates guesswork	Yes	No	No
Fast Format – quick repetition of text formats	Yes	No	No
SmartMerge step-by-step mail merge guide with a card file data manager	Yes	No	No
Preview of professionally-designed Style Sheets for memos, faxes, letters, newsletters, etc.	Yes	No	No
WYSIWYG preview in File Open to quickly view, print, or extract text	Yes	No	No
Number of import/export filters (word processing, database, spreadsheet, graphics)	45	27	36
Grammar Checker	Yes	Yes	No
On-line Tutorial	Yes	Yes	No
Automatic re-numbering of lists	Yes	No	No
Colorful, customizable, editable, sizable SmartIcons [™] for one click access to your most frequently used tasks	Yes	No	No
In-context editing of drawings and charts	Yes	No	No
Laptop Install option for quick and minimal configuration on a laptop	Yes	No	No
Clean Screen option for total workspace customization	Yes	Yes	No

Competition.

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ENTERPRISE COMPUTING / MANAGEMENT

Stone Container adopts a vigorous antipiracy policy

PC support department keeps vigilant watch of software use to make sure it's legal

BY ALAN RADDING

PC software is one of those stepchildren for whom no one takes full responsibility. Data center professionals may be assigned to support it, but it's really the end-users' baby. The end-users, however, haven't the time, skills, discipline, or inclination to manage it. The result is a chaotic mix of corporate standards, frequent exceptions, and multiple versions of the same product. It all boils down to a corporate environment with both legally licensed and unlicensed copies of software. And, like the unwanted stepchild, the PC software situation usually doesn't get the attention it needs until it causes serious trouble.

Increasingly, that trouble comes in two forms: the software police, a.k.a. the Software Publishers Association (SPA), knocking on the door with a report of unlicensed software on the premises, or management suddenly realizing that a big part of the company's PC budget and resources are being consumed by software purchases, upgrades, and administration.

At Stone Container Corp., a large Chicago-based manufacturer with 2,000 PCs, responsibility for PC software has fallen to Ki Wilson, information resources specialist. Specifically, Wilson is wrestling with two thorny problems: making sure the company's PC software usage is legal and administering the software upgrade process. Both can be thankless tasks.

LEGAL AGGLE. Keeping Stone legal from a software standpoint has become a top priority for the PC management group. "We've seen coverage of hushes in the newspapers," Wilson says. "We're pushing to make sure some sort of enforcement policy is in effect, because senior management will hold us responsible if there is a problem."

It's a stand that doesn't make the PC management group particularly popular with end-users, who generally resent anything smacking of IS control.

The company's basic position on the licensing question is written in stone: Every PC user will use legally obtained, licensed software. That, however, is easier said than done. Although Wilson rarely finds Stone employees or their managers deliberately copying software illegally (in effect, stealing it), ignorance and the breakdown or lack of procedures can result in unlicensed copies of software in circulation.

The procedural problem is straightforward. "Our policy is that when a new PC replaces an existing PC, all the data and applications are copied to the new machine," Wilson explains. "Everything but DOS is wiped out on the old machine." The old machine is then handed down to another user.

The only exceptions to the procedure is when the new machine comes preloaded with software or if other specific arrangements have been made. Traditionally, PC software is licensed for a

single user on a single machine.

REMOTE USERS. The licensing situation gets more complicated when laptop and home computers are thrown into the pot. Because some of Stone's users also work at home or on the road, "We have to investigate the license requirements of each software package," Wilson explains. Many, but not all, of the major PC software vendors now have provisions that allow the user to copy the software onto a laptop or a home machine, provided that only one copy of the software is in use at any given time. License flexibility is part of the company's prepurchase evaluation process, Wilson notes. Stone also maintains a pool of laptops that it lends to users and purchases separate software licenses for each laptop, he adds.

Although Stone's procedures are designed to prevent extra copies of the software from inadvertently remaining on machines, that addresses only part of the problem of unauthorized software use. End-user education is the other crucial part of the equation, especially if PC managers don't want to become permanent software police.

USER AWARENESS. Wilson initiated a comprehensive software licensing education program. "We put together educational materials explaining the situation and spelling out the users' responsibilities," Wilson says. And just to make sure users don't miss the point, Stone requires them to sign a statement saying they have read the company's software policy and will abide by it. The signed statement is kept on file, a signal that Stone takes this matter very seriously.

The SPA recommends that companies develop a formal software policy specifically addressing illegal usage of software and require all employees to read and sign it when they start their employment and, again, every year thereafter.

When users are educated to the importance and value of licensed software and understand the risks and penalties for using unlicensed software, they usually are more than willing to comply. "Most of the problems are the result of ignorance," Wilson points out.

But there still are departmental managers who are unhappy about buying a copy for every user. In a big department, it can add up to a significant amount. Although the managers wouldn't outright endorse stealing software, some department heads are willing to look the other way when software is illegally copied, Wilson says. Stone, however, considers software licensing to be a cost of doing business. Again, when confronted with the cold facts—a clear violation of company policy, the prospect of discipline by the company, significant legal penalties in the form of fines, and embarrassment to the company and themselves—the managers come around.

PRODUCT UPGRADES. The problem of illegal software is being compounded by the large number of product upgrades

flooding the market. Every vendor, it seems, is bringing out updated versions of its products to run under Windows, OS/2, or DOS 5.0. Administrators managing PC software upgrades have become a costly, time-consuming headache. If care isn't taken, older versions of the software will continue to circulate in violation of the license agreements.

Putting aside concerns over unlicensed software, the administration and cost of frequent upgrades is straining the resources of PC support organizations like Wilson's. The basic upgrade procedure begins with collecting proof of ownership, usually an original disk or opening page of the documentation. PC support personnel then must visit each machine to install the software and distribute the new documentation. With several thousand PCs running multiple pieces of software, the process can quickly get out of hand.

"The whole upgrade process is a big hassle, and when you have a lot of stand-alone machines, it is a nightmare," Wilson complains. By the end of this year, Wilson expects about 80 percent of Stone's PCs to be connected to a LAN, which will make life easier by eliminating a trip to each PC to install the new software. It won't, however, eliminate all the pain and cost associated with software upgrades.

INTERNAL STANDARDS. The sheer volume of PC software upgrades is forcing companies to rethink the entire upgrade process. For example, Stone's IS group establishes standards for PC software, down to the version level it will support. Where it was once automatically assumed the company would adopt the latest version of its core software products, Stone now finds it must become more selective. With every upgrade representing a significant expense in terms of purchase cost, staff time, and user training. "We really have to decide whether, say, [Lotus] 1-2-3, 2.4 offers much more than [Version] 2.3," Wilson says.

As it is, many Stone users are falling behind, having put off moving to Version 2.3, even though it has been the Stone standard for some time. Frequently, the user departments balk at another upgrade because of the cost and disruption. That cost may even include a hardware upgrade: more memory, more storage, or a faster



CPU to run the latest version.

Fortunately, two recent trends are easing upgrade administration burden, Wilson says: LANs and more flexible license arrangements.

As more Stone users are connected to LANs, the company is turning to concurrent-use licenses on LANs. These licenses allow a specified number of users at any given time to access the software from a LAN server. An upgrade, then, entails only installing the new version at the server.

There are drawbacks, however, to concurrent licenses. They require a mechanism, such as LAN metering, to count and control the number of users actively using a piece of software, and they don't provide for the software's use on laptops or home machines the way individual licenses increasingly do.

To keep track of all licensed software, Stone adopted the SPA software audit kit, which includes an audit methodology and software that collects information about all the programs loaded on each machine. The company also distributes educational material included in the kit to end-users.

The SPA audit kit with the methodology, software, a video, and educational materials costs \$85, but you can often get it for free by attending one of the many SPA software licensing presentations held around the country for PC user and manager groups.

There is one easy solution to the entire problem that Wilson would like to avoid—a site license. With a site license, the organization pays one fee and licenses every user.

"We may be forced to look at a site license," Wilson says. "It's a lot easier to administer, but it is much more expensive."

Alan Radding is a Newton, Mass., freelance computer journalist.

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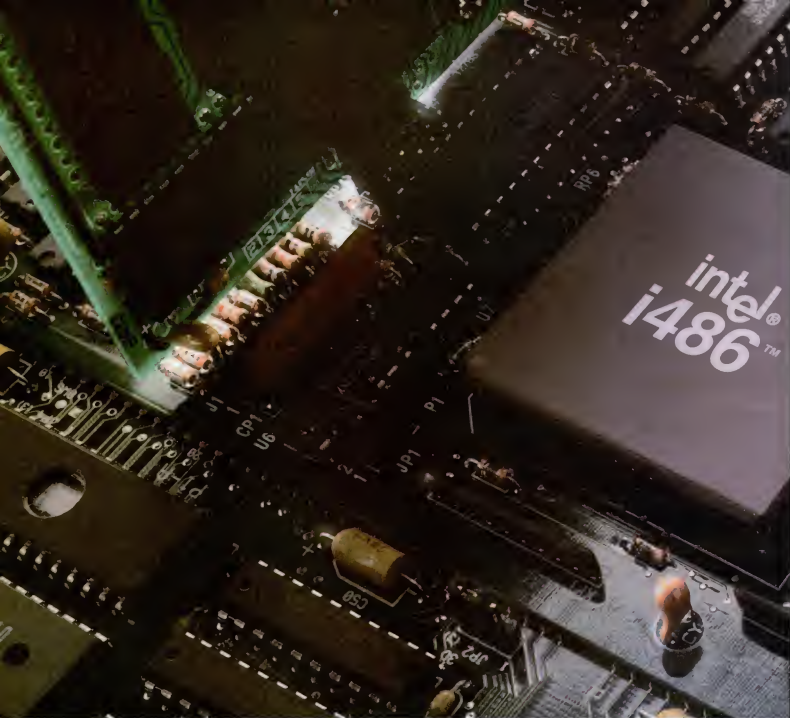
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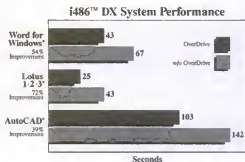
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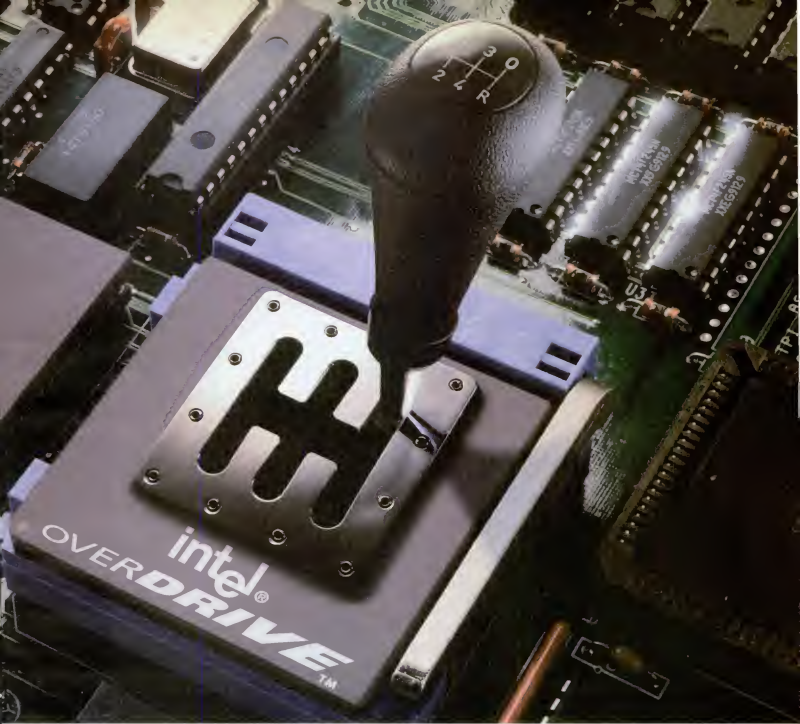
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IS Profiles / Alice LaPlante

Inventory solution from Henry Ford's day is just as valid today

Jerry Stracke was not content with merely seeing how other health care firms were using technology to reduce inventory and costs. After all, hospitals have been notoriously slow to automate basic administrative functions. Instead, Stracke, who is vice president of purchasing for Evanston Hospital Corp. (EHC) of Evanston, Ill., looked to the manufacturing and retail sectors for some new ideas to improve inventory management.

He discovered these businesses were using just-in-time (JIT) inventory management techniques to maintain up-to-the-minute information on materials and supplies.

JIT is a method manufacturers have long used to order and track materials needed in the production process. The goal of JIT is to enable companies to order only the materials currently needed to complete a manufacturing process. The result of this efficiency is the elimination of large and costly inventories.

JIT is not a new concept — in fact, Henry Ford used it in his first automobile factories in Detroit. But like a time-honored tradition that works well, it has recently been applied to computer systems. JIT software handles all the required functions of a production system, from order entry to product shipment.

Stracke discovered that a JIT system could help his company keep inventories to an absolute minimum by allowing the inventory department to communicate on a daily or even hourly basis with suppliers.

STREAMLINING INVENTORIES. At the heart of the system is Electronic Data Interchange technology. EDI is a standard means for electronically exchanging business forms such as purchase orders and invoices. These forms can be transmitted between companies and their suppliers using a variety of different computer systems. EDI eliminates the exchange of paper forms through the mail, telephone calls, and personal sales visits.

EHC, which comprises two suburban Chicago-area hospitals, is realizing a cost savings from its new system that far outweighs the technology investment.

In 1991 alone, as a result of using EDI and a more centralized way of negotiating prices and contracts with suppliers, EHC saved more than \$2 million, Stracke says.

And EHC now has a "virtually stockless" inventory system. "We transmit orders daily and receive deliveries seven days a week. Supplies are delivered as we need them," Stracke says.

Stracke had to overcome initial resistance to the new technology and the requisite investment. Corporate managers shared a commonly held belief that EDI systems are capital intensive and labor intensive. Not so. EHC's EDI system runs on a single dedicated PC linked to the corporate mainframe and to EDI trading partners via a dial-up telecommunications link.

Stracke not only had to convince his managers of the benefits of EDI, but he also had to win many of his suppliers to adopt the technology as well. In any industry, suppliers often loathe to change ordering and accounts payable

procedures that have been in place for decades. This involves, among other things, new ways of training salespeople and interacting with customers. In many cases, completely new sales procedures are required.

Yet it's worth it, Stracke says. Not only is paperwork eliminated, but suppliers and hospitals work together to predict inventory levels and demand and have a firm handle on what is selling and what isn't.

OFF-THE-SHELF. Although the menu-driven EDI application, which allows inventory personnel to interact with the host purchasing database, was written in-house, the lion's share of the system was developed using off-the-shelf software. For example, the communications package is Crosstalk from Digital Communications Associates Inc. of Alpharetta, Ga.

EHC's main materials purchasing system relies on an IBM mainframe running Integral Software Inc.'s Materials Management Software System. It provides a comprehensive system for purchasing, accounts receivable, accounts payable, and inventory for hospitals.

EHC not only changed the way purchasing transactions were handled on their IS systems but also changed the way the business operated.

Stracke hired a materials management IS (MMIS) manager dedicated to the

EDI system, who also serves as a liaison to the hospital's centralized IS department, Stracke says.

Erhard Fleischer's first job was to create a user interface for the EDI purchasing system. He set up a series of menus, written in C, for users to enter their orders on a daily basis. The data is uploaded to the mainframe using a straight file transfer program and compiled into the main purchasing database. EHC buyers then take the data and create the daily purchase orders. Once the purchase orders are complete they are downloaded to the dedicated EDI PC and transmitted to suppliers.

CENTRALIZED PURCHASING. In a typical hospital, a sales representative from a medical supplier will come in to a radiology department and sell various supplies. The department will write up a requisition and send it to the purchasing department, which issues a purchase order. When budgets are tight, the purchasing department may delay the purchase, at which point a conflict ensues between the two departments.

Stracke wanted a computer system and purchase policies that would avoid that. He also wanted to eliminate inefficiencies and save money. But he knew he couldn't do it alone. He decided this effort needed a team approach, so he brought together a committee with representatives from every area involved in

the purchasing process.

"Our team is made up of professionals from information systems, materials management, purchasing, accounts payable, and internal auditing," Stracke says. "Together we sit down and establish strategic business plans to accomplish our goals."

At Evanston hospitals, Stracke says, all purchasing is done in a centralized fashion. Volume discounts are negotiated with approved vendors, and purchase orders are sent via the system through purchasing for approval, and then directly to the supplier. There is no paperwork and no excess inventory.

"A lot of what we do at Evanston isn't just based on the health care industry," Stracke says. "Most efficient businesses know exactly where their inventory is and how much is there. But most hospital purchasing decisions are decentralized, which means that physicians, nurses, administrators, and department heads make the buying decisions."

To date, Evanston Hospital is the only hospital that actually confirms purchase orders and transmits its invoices electronically.

"Some hospitals are beginning to fax orders to their suppliers, and they call it EDI," Stracke says. "Health care is way behind other industries when it comes to materials management and purchasing."

If a department wishes to place an order for a product not on the approved list, it has to fill out a request form electronically. The purchasing department evaluates the request, asking questions such as, "Does it add value?" and "Does it reduce our costs?"

"If it doesn't fulfill our basic requirements, we're not going to automatically order it," Stracke says.

CAREER ROUTES. Stracke came to purchasing through an unusual route. After earning a bachelor's degree in art, he worked his way up at Evanston Hospital from storeroom clerk in the warehouse to his current position as vice president of the entire purchasing operations.

"I spend a lot of time networking with non-health care professionals and at purchasing and materials management seminars," Stracke says. For example, he recently visited San Diego Gas and Power Co. to see how it manages inventory.

Stracke credits efficiency and frugality in part to his Iowa upbringing. "I grew up on a farm with seven brothers and sisters. We didn't have a lot of extras," Stracke says.

Fleischer started out as a medical technician in the EHC laboratory and took his current position a year and a half ago after earning a degree in IS technology. "Our equipment in the lab was becoming more computerized, and I became interested in the technology itself," Fleischer says.

Fleischer says he's enjoying his new career, and getting the advanced IT degree helped. But it was "awfully theoretical" when compared to what really goes on in today's businesses, he says. "You get a nice overview of the way technology should be used," Fleischer says. "A lot of it isn't even close to what is actually going on. Still, it gives you a starting point."

Alice LaPlante is an InfoWorld contributing editor.



Evanston Hospital Group inventory system development team: Frank Bauer, Don Staltzer, Mary Arp, David Spaulding, Richard Kennely, Tom Vonsoer, Erhard Fleischer, Jim Golik, and Tom Smith.

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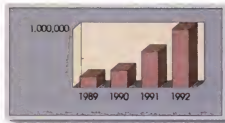
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New Age IS / Cheryl Currid

Toys for Techies list is chock full of ideas with a payback for IS



Ho Ho Ho! It's almost Christmas time. Only six more shopping weeks before the big day. And, as promised, I've started making my annual Toys for Techies shopping tours. In fact, my list has gotten pretty long.

Currid's annual search for the latest and greatest technology toys was expanded this year. Rather than just shop for my favorite nerds, I've been on the prowl for gifts for corporate citizens, too. In fact, I'll start this week with collection of great gifts for IS staffers to take to corporate colleagues. (You know, neat little things with a payback.) Here's one that will keep the help desk from hopping needlessly. For about \$69, you can take care of those "broken" printers that are really just out of paper.

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For budding artists (or your first foray into pen computing), you have to try the Acecat 5-by-5-inch tablet from AccCAD Inc. in Monterey, Calif. The company can be reached at (800) 676-4223 or (408) 655-1900. This \$129 graphics tablet lets people draw, trace, or hand-write into a computer. Aside from great graphics potential, the Acecat can be a low-cost pilot for trying pen input. It can take advantage of pen-centric systems such as Windows for Pen Computing or PenPoint.

Don't let 'em go mouseless or without an electronic calendar for 1993. Check out the Christmas promotion that bundles a classic Microsoft word puzzle with Amaze Inc.'s electronic Trivial Pursuit. In addition to the game, this package has a good electronic appointment planner that's only an icon click away. Amaze, based in Kirkland, Wash., is at (206) 820-7007.

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Well, that's the start of the list. Stay tuned over the next couple of weeks for more.

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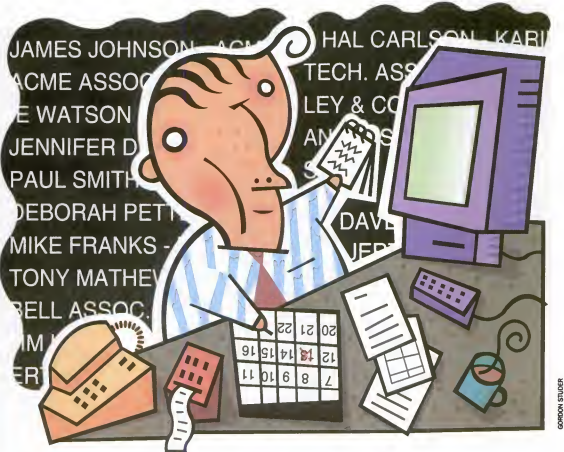
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REVIEWS / PRODUCT COMPARISON

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BY **PATRICK MARSHALL**
CONTRIBUTING EDITOR

EDITED BY **ANN M. MARCUS**
ASSOCIATE REVIEWS EDITOR

Contact managers have a long and distinguished history in DOS, but they're relative newcomers to Windows. Perhaps that's because salespeople, for whom the programs are designed, have preferred programs that run effectively on laptop machines as well as desktop systems. Where sales are at stake, the frills of GUI are not nearly as important as speed and portability.

But because affordable laptop units have acquired the speed and disk space to run Windows — and are increasingly preconfigured with Windows — contact management software is beginning to migrate to the Windows platform. We evaluated four products in this comparison. Just recently, Contact Software International Inc.'s Act — one of the best-selling contact managers for DOS appeared in *Disk-Count Software Inc.'s*

BCIM, Pyramid Data Inc.'s PowerLeads, and SuperOffice Corp.'s SuperOffice. In addition to the four packages reviewed in this comparison, we expect two of the strongest DOS contact managers — Action Plus and Maximizer — to be introduced soon in Windows versions.

Compared to their DOS cousins, Windows contact managers are still relatively underpowered. The Windows version of Act, for example, lacks several of the DOS version's features, including its expense module. And although DOS users have their pick of network contact managers, that's not yet the case in Windows. Indeed, the only package currently on the market that has full-fledged network capabilities is SuperOffice, an import from Norway. Contact International says it is working on a network version of Act, but that product probably will not be available until next year.

Nonetheless, Windows contact managers have two great advantages. First, they capitalize on the graphic capabilities of the Windows interface to make for a more attractive, interesting product that's easier to use. Second, they exploit

the compatibility of Windows products, allowing you to integrate external word processors or spreadsheets, resulting in a much more powerful suite of applications.

The four programs selected for this comparison share certain features: They provide a database for tracking contact information, some degree of scheduling capabilities, a phone dialer, and a way for you to create form letters and perform mail merges.

Of course, certain personal information managers (PIMs) generally meet these criteria as well. But what separates a contact manager from a PIM is the intended audience. Contact managers are designed with a sales staff in mind.

Beyond the overall similarities, the packages reviewed here are marked by striking differences in features, customizability, and in what can best be described as "personality."

Patrick Marshall is a Contributing Editor to InfoWorld. He covers many product areas, including personal information and contact management, mapping, image editing, PC paint products, scanners, and 24-bit video boards.

Executive summary

Tfew contact managers available under Windows. Yet the four products we examined represent a wide variety of capabilities, and each will appeal to a somewhat different group of users.

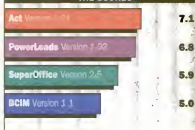
Act is the most expensive contact manager in this comparison with a list price of \$499, but it also offers the most customizability, the strongest scheduling capabilities, and one of the best sets of search tools available. If price is not your primary concern and you don't need network capabilities, you'll want to take a close look at Act.

PowerLeads is the bargain hunter's choice among this group. Excellent search capabilities, stronger-than-average scheduling tools, and powerful reporting features make PowerLeads nearly as feature-rich as Act, but its price tag of \$295 makes it a lot more affordable.

SuperOffice is your only choice if you're looking for a networkable Windows contact manager. Its stand-alone version lists for \$395; five- and 10-user network versions cost \$1,295 and \$1,995, respectively. Although consumers may fret over the dearth of networkability in this category, SuperOffice is a stylish program with strong document-creation capabilities and nice extras, such as the sales tracking module. Scheduling is the program's weakest point. It is also lacking in customizability.

BCIM, with a list price of \$99.95, is the least expensive program in this comparison. Not surprisingly, it also offers the fewest bells and whistles. It can produce attractive reports, but it is severely limited as a scheduler. BCIM's most notable trait is that its interface is so DOS-like that users may find it hard to believe they're working in Windows. Whether that's a plus or minus is up to each user.

THE SCORES





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Act for Windows

Version 1.01

Act is one of the premier DOS contact managers. The new Windows version gives Act an even larger presence in the area of contact management. A version for Macintosh is also available.

As with Act for DOS, Act for Windows' home base is the contact record. There are nine alternative layouts for a record, each with different sets of data fields. Contact Screen 1, for example, displays 31 fields, including name, company, address, phone number, a "next meeting" field, and up to nine user-defined fields. The Phone layout displays only the contact's name, company, and five telephone fields.

Act also lacks network support, the feature unique to SuperOffice in this comparison. Another big problem with Act is its use of the Windows default font settings to display both the field label text and the data you enter. Modifications you may make to your Windows fonts either manually or as a result of using other Windows programs can cause a text sizing problem to occur. For example, the Company field label may appear as "Comp..." and dates or phone numbers may appear truncated.

Act allows for flexibility in customizing field names and field types, but you can't modify the appearance, order, or location of fields in any of the program's layout views. Although you can't change Act's layouts, the abundance and variety of layouts offered and the intelligent selection of fields included in each layout should satisfy most users.

Act's records contain 73 data fields, not all of which are displayed in any one of the nine preformatted record displays. Contact Screen 1, for example, contains 31 data fields, including one address field and the first nine user-definable data fields. Contact Screen 2 offers room for an additional address and the rest of the 15 user-definable fields, as well as fields for recording recent meetings and contact results. This design represents the front and back of a single card. You can flip easily between these or any two views you use by clicking an icon.

To more closely fit your needs, you can change all but three of the fields—15 of them are specifically labeled as user definable. Users can change not only the field labels but can select whether a field reflects character, numeric, date, time, or currency data. If, for example, you don't need the Salutation field, you can redefine it as a numeric field and use it to track clients by account numbers.

You cannot change two attributes of Act's data fields: the length, which varies between four and 75 characters; and the location on-screen. If, for example, you change a telephone field into a character field, it will then accept characters as entries, but you cannot enlarge the field from its allotted 19 characters.

Whenever you make changes to a contact record, call a contact using the dialer, print a letter using the word processor, or schedule an appointment with a contact, Act automatically records the information in the contact history for that contact. The history's one significant weakness is that Act can only log those documents you create in its own word processor. If you shell out to use Word for Windows, Act can use Dynamic Data Exchange (DDE) to provide data from your contact record to the document, but it will not log the letter to the history. **Score: Very Good.**

Act's search tools rate the highest score—along with PowerLeads—of any program in this comparison. There are three basic ways to search: each way allows you to use DOS wild card characters (*, ?).

To perform a Lookup search, you select the field to search—Company, First Name, Last Name, City. **See ACT, page 64**

BCIM

Version 1.1

BCIM (short for Business Contacts and Information Manager) is not quite up to the standards set by the more expensive packages, even in its areas of strength. In fact, BCIM wins the award for most DOS-like interface running under Windows. With its flat interface and block-type layout, BCIM looks so much like a DOS application you would swear it was simply running in a DOS window, even though you can't even install the program with Windows running.

BCIM starts with its display of your schedule, which appears as a simple box with a listing of events and a smaller monthly calendar for navigating. To enter contact records, you select Clients from the File menu and BCIM's record form pops up. Alternatively, if you highlight an entry in the activities list, simply pressing the Go To button will take you to the contact's record.

BCIM does not give you a choice of layouts for your contact data. The preset layout is a plain listing that contains all 24 fields contained in the database and looks something like an index card.

Two rows of buttons available along the bottom of the contact record perform such tasks as adding a record, writing a letter to the contact, or viewing a contact history.

BCIM's capacity is limited only by space on your hard drive. However, unlike Act, BCIM can accommodate only a single database of records.

Contact records are also relatively limited in the number of fields offered: 24. And you can't add to or modify BCIM's data fields, though you can customize them by putting your own labels on any field in the database. There's room only for a single address per contact and up to three telephone numbers, one of which is labeled as a fax number. The record also includes a 50-character note field and an unlimited-capacity note field. Plus, you can attach separate memos of between four and six pages of text to a record.

The 10 data fields stacked at the bottom of the record are intended for special information about the contacts, such as credit rating, birthday, spouse's name, or whatever other information you want to attach. The entry can only be up to 15 characters long, however. Data entry in these 10 fields is done only through an editable lookup table.

BCIM, like other contact managers, offers a contact history record for tracking phone calls, letters, faxes and other activities involving contacts. But unlike in the other packages, none of these activities is recorded automatically in the contact history. Instead, you must manually record every item. The contact history module's one plus is that you can attach external documents to a contact's history record, so when you double-click on the selected file, BCIM automatically launches the parent application and loads the selected file.

The lack of an automatic history feature, however, seriously compromises the program's functionality as a contact manager. **Score: Satisfactory.**

BCIM's search capabilities will favorably surprise some, especially the capability to perform searches using multiple-field criteria. Multiple-field searches are performed by selecting Filter by Example from the Search menu. The program then displays a blank record form, and you can enter search terms in any or **See BCIM, page 64**

PowerLeads

Version 1.02

Pyrmaid Data Inc.'s PowerLeads is a midpowered contact manager with a midlevel price of \$295. The program is unique in its capability to conduct phonetic searches. Like Act, PowerLeads allows you to schedule recurring events and set alarms for scheduled items. It's also the only program besides Act to provide search catalogs, support the use of wild cards and Boolean operators in searches, and allow you to sort retrieved records.

PowerLeads uses the contact record as the program's home base. Nearly all of the program's tools are accessed through the contact record. You click on the calendar to view or schedule an appointment, you click on the notepad to create or edit notes, and so on. Utilities and expense features are accessed through the pull-down menus above the icon bar.

PowerLeads' interface is undeniably Windows-like, with three-dimensional buttons and icons. But there's a lot of wasted space on-screen. And PowerLeads is not very customizable, meaning that even where you can change a field label, you cannot adjust the field types.

PowerLeads is logically designed, but if the choice of data fields and the way they are presented don't suit your needs, you will have to look elsewhere.

Unlike many contact managers, PowerLeads allows you to maintain multiple databases, though you can have only one open at a time.

The contact screen offers 18 data fields, including room for a single address for the contact and up to three telephone numbers. You can also click on the More Info button to summon a pop-up screen that offers 10 more fields that users can label; four of them allow as many as 60 characters of data and six check boxes.

In fact, you can customize the labels of any data field in the record via the Customize option on the Utilities menu. But you can't actually change the type of data field from, say, character to currency, nor can you change a field's size.

Three of the record's 18 main fields allow you to rank your contacts. The Rating box allows you to enter a one-letter code, the Priority box allows you to enter a one-number code, and the Primary check box lets you designate the primary contact you have for a company. You can also enter a brief description, such as "banking" or "personal" in the Type field. You can use these rankings for searching and sorting.

In addition to searching for a specific contact, you can view a listing of all contacts that displays only names and companies. When you highlight an entry and hit Detail, you'll have the full record.

Instead of having a separate module for histories, PowerLeads logs all contact records into the notepad. The one drawback to this approach is that it can be difficult to find the history item you want, especially if you enter lots of notes. Fortunately, the notepad does allow for keyword searches. Unlike in Act, you cannot purge history items by date range. **Score: Good.**

PowerLeads provides all the searching tools most users are likely to need to retrieve records—more tools than most of the competition.

The simplest form of search is the contact Lookup command, which prompts you to enter the sought-after contact's last name, first name, and company. You **See POWERLEADS, page 64**

PERFORMANCE: RECORD MANAGEMENT

PERFORMANCE: SEARCHING

SuperOffice Version 2.5

There's something reminiscent of a Macintosh application in SuperOffice Corp.'s SuperOffice. For all the cuteness, though, SuperOffice is all business. It is currently the only network-capable Windows contact manager.

The program offers laptop-to-PC-version update capabilities and some strong accounting features. SuperOffice also offers the best integration with external Windows word processors and spreadsheets.

SuperOffice doesn't have Act's customizable data fields or strong scheduling features, but this package is smoothly integrated with the most eye-catching interface. It is also Mac compatible — the only cross-platform contact manager for Windows.

SuperOffice loads your daily schedule at start-up, displaying a box that looks like a Daytime page. It shows time durations for appointments, and a check mark appears next to completed items. Below the schedule is a box containing any outstanding to-do items, the contact to which they are attached, and the date for completion. There's also a miniature day calendar with the current date and five icons for moving elsewhere in the program.

SuperOffice's other main module — Customers — keeps contact records. The screen displays company information on a Rolodex-like card, with a box below that contains names, titles, and notes on individual contacts. Icons at the bottom of the screen takes you to other records, let you add a record, schedule an appointment, or write a letter.

SuperOffice offers useful customizable lookup tables for entering data and strong automatic contact histories. SuperOffice also allows you to shell out to other programs and even provides a gateway for E-mail.

RECORD MANAGEMENT

SuperOffice offers simple and effective record handling. The contact records are composed of 22 fields, including fields for one address and up to three telephone numbers. There's also a column of fields for company information, including the business type, its contact "category" (i.e., supplier, customer, etc.), the company's total sales, number of employees, and the date the record was last changed.

Five of the fields are devoted to customer records are devoted to recording individual contacts, along with their titles and brief (2K) notes. The customer record also includes an Interest field for entering keywords describing the contact. (Version 2.5 allows you to track two Interest fields — company and individual — separately.) SuperOffice keeps track of accumulated sales to a customer and compares actual sales with budgeted sales. The program also tracks projected sales by their due date. You can jump directly from the Customer record to the Diary to schedule an appointment or enter a to-do item. By using the Follow Up icon — in both the Diary and Customer screens — you can summon SuperOffice's version of a contact history. Although the Diary displays all appointments and to-do items, the Follow Up view displays only those items that are attributed to the currently selected customer. Appointments, to-do items, and documents created and printed in an external word processor are automatically logged into the history. However, phone calls placed with the dialer must be manually entered into the history.

The one major weakness of SuperOffice's record handling is its lack of customizability. The data fields are intelligently chosen, effectively laid out and likely to satisfy many users' needs. But there's no support for allowing users to label and define their own fields to contain the type of information they want to track, capabilities SuperOffice lacks. **Score: Good.**

SEARCHING

SuperOffice provides relatively limited searching capabilities.

In the Diary module, the Find command only allows you to enter a date so that you can see another day's schedule. You cannot search through the entries themselves for a character string.

See SUPEROFFICE, page 65

How we compared contact managers

We evaluated four Windows contact managers: Contact Software International Inc.'s Act, Disk-Count Software Inc.'s BCIM, Pyramid Data Inc.'s PowerLeads, and SuperOffice Corp.'s SuperOffice. We tested the packages on a Naga Systems 486/33 configured with 16 megabytes of RAM and a 340-megabyte SCSI hard disk, running Windows 3.1 and DOS 5.0.

RECORD MANAGEMENT:

This category addresses whether the program provides sufficient data fields for contact records, the degree of control over defining data fields and layouts, and how effectively you can track changes in records through contact histories.

To achieve a score of satisfactory, a program must provide at least a dozen data fields, including fields for name, company, title, one address, and at least two telephone numbers. In addition, the program must offer at least a few user-labeled fields and must provide some sort of contact history.

We award bonus points when a program provides not only user-labeled fields, but truly user-definable fields. The program must also allow the user to change the layout of fields. Finally, the program must be capable of automatically logging telephone calls, appointments, documents, and faxes into contact histories.

SEARCHING:

To achieve a score of satisfactory, a program must let users search through the database to retrieve all records containing a specified character string.

We award bonus points for support of field-delimited searching and the capability to use wild cards in search terms and search on multiple fields. Extra points are also given if the program provides the user with some means for sorting retrieved records. Even more favorable scoring goes to products that provide the full array of search tools, including multiple-field searching and sorting, wild card searches, search catalogs, and Boolean operators.

SCHEDULING AND TELEPHONE:

To earn a score of satisfactory, the program must be capable of retaining and displaying a daily schedule of appointments for the user and must also be capable of displaying the activities attached to a particular contact. The program must also allow the user to set alarms for appointments. On the telephone side, the program must provide an auto-dialer and a means for the user to keep a log of phone calls.

We awarded extra points to programs that provide features such as snooze alarms, prioritized to-do lists, time lines, weekly and monthly displays of schedules, and the capability to schedule recurring events.

A program must include all of these features plus group scheduling capabilities to earn an excellent score.

DOCUMENT CREATION:

To earn a satisfactory score, a program should provide a means for the user to create and use form letters and perform mail merges with contact records. Because these are all Windows programs, it is not essential that the word processor be a part of the program. In fact, if a program tightly integrates with a more powerful external word processor, it could earn a higher score than a program that comes with only an adequate internal word processor.

To earn extra points, the program must provide access — either on its own or by shelling out — to strong document formatting features and must also provide tracking of documents to contact records. We also awarded extra points to programs that provide extra preformatted stylesheets for documents and for such features as document archives.

REPORTING:

We rate programs on two main criteria: the variety and usability of the report formats provided for printing data from the database and the degree of control the program gives the user over customizing reports.

To attain a score of satisfactory, a program should provide reasonable formats for users to print all the data



that they are able to store in the contact manager.

We award bonus points to programs that provide easily accessible customization for the user and a wide variety of reports — including mailing labels, rotary index cards, and daily and weekly calendars.

FILE MANAGEMENT:

Getting information in and out of the database can be crucial. To achieve a score of satisfactory, the program must at least support delimited ASCII imports and exports of data. We awarded extra points for the capability to import and export files in dBase format or allow the merging of two databases in a package's native format. We also award points for the capability to automatically update different versions of files — for example, updates of files from a laptop to a PC.

OTHER FEATURES:

To earn a score of satisfactory in this category, a product must possess a feature not included in any of the other packages. We award bonus points for special features such as network capabilities, the capability to track and report users' sales, expense tracking, the capability to attach add-ins, the availability of foreign language versions, spelling checker, and the capability to download to palmtops.

DOCUMENTATION:

Documentation scores reflect the quantity and quality of both printed and on-line information. At a minimum, documentation should describe the product and how to use it. Bonus points are awarded for a quick-start guide, on-line tutorial and help programs, a quick-reference card, and a written tutorial. Poor organization, missing information, or an incomplete index lower the score. Error messages are also considered under documentation. Bonus points are awarded for programs with error messages that clearly explain the problems or, ideally, that offer suggestions on how to resolve them.

EASE OF LEARNING:

Ease-of-learning scores depend on the user interface and the intuitive design of the product. Other factors that influence this score include the complexity of the program, setup, and the quality of documentation and tutorials. To earn a satisfactory score, a program in this category must be learnable by novices.

EASE OF USE:

Ease of use is in large part a function of the program design; this score reflects how easy the typical user would find the program to use once the basics have been mastered. Command shortcuts and an easy-to-follow menu system are two features that can increase ease of use. We focused especially on customizability in these programs.

SUPPORT:

Support is divided into two areas: support policies and technical support. In scoring support policies, we limited free support earned a satisfactory score, and we award bonus points for product usability warranties, money-back guarantees, a toll-free line, and corporate extended support. We subtract points when vendors provide no technical support or limit the support (typically to 30 or 90 days). Technical support scores are based on the quality of service we received in the course of multiple anonymous calls to the vendor and the availability of knowledgeable technicians.

VALUE:

Value scores reflect the balance of price vs. the performance and features of each package tested, taking into account the competition.

The most versatile of the packages reviewed, Act offers dozens of user-definable fields, strong search capabilities, alarms, and recurring-event scheduling.

BCIM is a low-cost solution that provides fine searching and is easy to use, but its telephone and scheduling features fall short of its searching tools.

Act

BCIM

(Continued)

PowerLeads

(Continued)

PERFORMANCE: SEARCHING

State, ZIP Code, or ID/Status — from the Lookup menu and enter your search term. Because you're searching only a single field of the database, results come up promptly.

If you select Other from the Lookup menu, Act will display an empty record in the record format you were using most recently. You can then enter search terms directly into the appropriate fields, and the program will perform a multiple-criteria search. The Smart-Query screen lets you search for two terms in a single field, combine fields with Boolean operators, and use logical operators for comparing fields. You can also specify which field Act should use to sort the retrieved records. You can save queries and add them to the Custom submenu of the Lookup menu for quick access.

Finally, you can use keyword searches to scan all fields in the entire database to locate a particular character string, and you can also use wild cards and Boolean operators. **Score: Excellent.**

all of the fields. BCIM can't handle wild cards, but it will accept partial entries. The exceptions are the telephone and date fields, which must contain complete entries.

You can also perform a Quick Search, which prompts you for the client code you've assigned to a record and/or the client name.

Finally, you can bring up a summary list of all the records in the database and scan them visually for the one you want.

Unlike the higher end contact managers, BCIM doesn't support Boolean operators, nor does it offer a search catalog. **Score: Good.**

fill in just the company field if you want to retrieve all contacts at a certain company, or you can use the name fields to make the search more specific.

The Select By option allows you to retrieve records according to the way you've assigned them in the Type, Rating Priority, and Status fields. You can only select by one criterion at a time using this method.

The Query Filter is PowerLeads' most powerful search tool. The Query Filter dialog box leads you through the process of selecting search terms on a field-by-field basis and combining those terms with Boolean and range operators. You can save any query for future use.

Finally, the Query Filter has a button marked "Like" that will activate the program's Soundex feature. If you hit the Like button instead of the "=" button, the program will look for strings of phonetic similarity rather than exact matches.

If you retrieve only a single record with any of these search methods, it will be displayed immediately. If you've retrieved more than one record, PowerLeads will display a list of the records. **Score: Excellent.**

PERFORMANCE: SCHEDULING AND TELEPHONE

Scheduling is another of Act's strong suits. While two of the other contact managers fail to provide even alarms, Act for Windows supplies a full set of scheduling tools, including alarms with a snooze feature, lookup tables for quickly scheduling a call for later, and appointment conflict checking.

Act also offers attractive daily, weekly, and monthly views of appointments and tasks and allows you to change times by dragging the appointment from one time slot to another. Act also provides a prioritized activities list.

You can call up a specific contact record and summon a list of all activities attached to that record. You are prompted through scheduling an activity, and you can select how you want your schedule to display.

Act's telephone capabilities are nearly as strong as its scheduling. If you use the dialer, calls are automatically logged into the contact history of the appropriate person, and Act even includes a timer to time calls. The telephone log includes a lookup table to record the nature of the call. There's no place to take notes in the telephone log itself, but once your call connects, you can leave the log, return to the contact record, and click the Note icon to reach the date-stamped notepad.

Score: Very Good.

BCIM offers very limited scheduling capabilities, including only the capability to keep a daily schedule of appointments, which can be viewed either globally through the calendar view or contact-by-contact through the client records.

The program does not offer alarms, time lines, lookup tables, conflict checking, or scheduling of recurring events. Nor is there any automatic prioritizing of the to-do list. However, BCIM does offer the capability to roll all of your old calendar entries forward. Selecting Options Old schedules will bring up everything that's on your calendar before the current date. You can then update all the outstanding items to the current date.

BCIM's phone tools are nearly as spare. There is a dialer that can be used to auto-dial numbers from the contact record, though it is not accessible from the calendar view. Phone calls are not, however, automatically logged to the client histories. **Score: Poor.**

PowerLeads is also stronger than average in both scheduling and telephone tools.

With the exception of Act, PowerLeads is the only Windows contact manager to offer alarms for appointments and recurring events, and it offers lookup tables for entering time and date information. PowerLeads, like Act, also provides a prioritized to-do list.

Indeed, the only significant area of scheduling in which PowerLeads falls short of the feature set provided by Act is in its calendar displays. The schedules — both daily and weekly — are simple lists instead of graphically designed calendars that show duration of appointments. You can only view calls, appointments, and to-do items on the same screen by creating a Daily Planner report.

The program's phone capabilities are also impressive. When you use the dialer to place a call, PowerLeads asks, via a dialog box, whether you reached your party. If you click on yes, it will date and time stamp the item in the notepad and ask if you want to take any notes. If you respond that you didn't reach your party, the program records a note that you failed to reach the contact and offers to reschedule the call, automatically popping up a lookup table with various rescheduling options. You can also time calls with the program's timer, though you'll have to activate it manually. **Score: Good.**

SuperOffice - Customers

CONTACT

First Name: Thomas **Phone 1:** 401-649-6468 **Ext. 43**

Last Name: [blank] **Phone 2:** 401-649-6468

Title: President

Company: Country Associates

Address 1: 1438 No. Elm St.

Address 2: [blank]

City: Indianapolis **State:** IN **Zip:** 46208

Country: USA

Business: [blank] **Interests:** [blank] **Category:** [blank]

Notes:

- 9/1/92 - 1:49 pm
- 9/1/92 - 10:10 am
- 9/1/92 - 10:05 am * Called Spoke about Conference plans for next spring
- 9/1/92 - 10:04 am * Called Not reached
- 9/1/92 - 10:02 am

Scheduling and Telephone:

Calendar: September 1992

Days: Sun Mon Tue Wed Thu Fri Sat

Events:

Search: [blank]

PowerLeads is unique in its phonetic search capabilities. It also makes reporting on your contact information a breeze.

SuperOffice - Customers

CUSTOMER

Kenac Corp.

Address 1: 1515N St.

Address 2: [blank]

City: Stafford

State/Zip: VT 12203

Country: USA

Phone: 301-932-8730

Phone 2: [blank]

Fax: [blank]

Our contact: PM Patrick Marshall

Code: KENFAC

Number: 10002

Business: Industry

Category: Customer

Total sales: [blank]

Employees: 12

Last change: PM 05/92

Stop: [blank] **Internal:** [blank] **Edit:** [blank]

CONTACTS:

Multi-Select: [blank] **Print:** [blank] **Copy:** [blank] **Import:** [blank]

Hi: Peter **VP:** Michael **Resp. for Sales:** [blank]

White: [blank] **Delete:** [blank] **Previous:** [blank] **Next:** [blank] **New:** [blank] **Find:** [blank] **Follow-up:** [blank] **Day:** [blank]

SuperOffice offers network capabilities and strong accounting features, and it makes updating from your laptop version easy.

SuperOffice

SEARCHING

In the Customer and Follow Up records, you can search for strings in any one of four fields: Customer Name, Code, Number, or Last Name. With Version 2.5, you can also search on seven additional fields: City, State, ZIP, Country, Business, Interests, and Category. Further, you can specify that retrieved records must have entries that either equal, begin with, or contain the character string you enter.

Version 2.5 adds the capability to perform multiple-field searches (up to eight fields). **Score: Good.**

SCHEDULING AND TELEPHONE

SuperOffice offers only basic scheduling and telephone features.

Although you can enter appointments on the day planner and to-do items in the activities box, you can't set alarms for appointments or priorities for to-do items. You also can't schedule recurring appointments, and you get only the single daily schedule as a view.

Telephone features include an auto-dialer but no phone log. Any notes you want to make about your calls must be made by opening a new activity record and entering the information manually. SuperOffice also does not provide an area code list. **Score: Poor.**

Summarizing the results

Here is a summary of the products' performance in each of the categories shown in the side-by-side comparison.

RECORD MANAGEMENT:

Act is clearly the strongest program in the category of record management. Not only does Act offer the most data fields (75), it provides different views of records so that you don't have to face the clutter of fields if you don't need them all. Act's fields are user-definable, not just labeled, but you can't change field lengths or customize the layout of fields.

Both PowerLeads and SuperOffice lack Act's customizability, but both offer an intelligent selection of data fields, effective layouts, and strong contact histories that automatically log in letters and activities. PowerLeads, like Act but unlike SuperOffice, will also automatically log phone calls.

BCIM offers few data fields, only a handful of user-labeled fields, and no definable fields. Also, while BCIM provides a contact history screen, none of the entries is automatic.

SEARCHING:

All of the programs do at least an adequate job of providing search tools, but Act and PowerLeads clearly top the field. Both programs offer multiple-field searching and sorting, search catalogs for saving arguments for later use, and Boolean operators. Act's search tools have a slight edge in being easier to use, but PowerLeads rounds out its powerful set of tools with phonetic searching capabilities.

The other two programs lag considerably behind in this category. BCIM provides multiple-field searching, though the program doesn't offer a search catalog, Boolean operators, or sorting capabilities. SuperOffice has improved with Version 2.5's addition of five searchable fields and its new multiple-field searching capabilities.

SCHEDULING AND TELEPHONE:

Again, Act carries top honors in this category, with PowerLeads close behind. Act provides not only alarms and scheduling of recurring appointments, it provides an attractive and effective array of graphic calendars for viewing appointments and to-do lists. And Act's auto-dialer will automatically log calls into the appropriate contact history.

PowerLeads is the only other program to offer alarms and to support recurring events. Where PowerLeads falls behind Act is in its limited displays of schedules. PowerLeads provides only simple lists and doesn't allow you to view appointments and to-do items at the same time.

Both BCIM and SuperOffice fall short here for the

same reason: Neither program provides alarms for appointments, and though both offer auto-dialers, neither logs calls to contact histories.

DOCUMENT CREATION:

All of the programs allow you to shell out to any of the major Windows word processors and to perform mail merges with contact records. Only two of the programs, Act and BCIM, come with their own built-in word processors, and neither not coincidentally, those are the programs that scored lowest in this category.

Act's built-in word processor is surprisingly robust, but it's not match for the best external word processors. And Act's integration with outside word processors is not particularly strong. The program will not, for example, log documents created and printed in outside word processors.

BCIM's word processor is very weak, and like Act,

All of the programs do at least an adequate job of providing search tools, but Act and PowerLeads clearly top the field.

the program can't track documents created in external word processors. BCIM, however, has further weaknesses. Mail merges are not automatic: To get a name and address from BCIM to the word processor, you must cut and paste using the clipboard.

PowerLeads, which earned a score of good, and SuperOffice, which rated a very good, both rely exclusively on external word processors, but they do a superior job of integration with those outside applications. And both programs automatically log documents to contact records. SuperOffice is particularly impressive, thanks to its selection of preformatted sheet styles and its document archives.

REPORTING:

All of the programs provide more than adequate report formats for printing contact and schedule information, though Act deserves particular mention for the attractiveness of its reports, especially when it comes to schedules and its capability to print rotary index cards from contact records.

For its part, BCIM deserves special mention for its

See SUPEROFFICE, page 69

See SUMMARY, page 69

Get a better deal on a better 1-2-3.

Now that's good news for anyone buying a Windows® spreadsheet. First, we recently updated 1-2-3® for Windows so it now gives you more of the features you've been looking for in a Windows spreadsheet.

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Of course, when you come right down to it, there are plenty of other reasons why 1-2-3 for Windows is the best spreadsheet choice you can make.

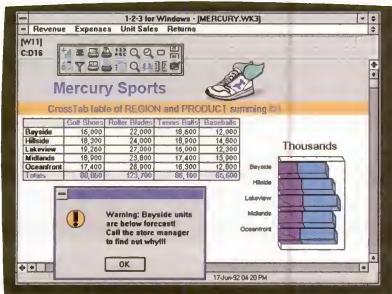
Its features and performance are better than ever.

1-2-3 for Windows now includes more

than 25 new features and usability enhancements, as well as a robust set of GUI development tools.

Recent performance enhancements also make 1-2-3 for Windows the fastest-printing Windows spreadsheet for Postscript® output. It also makes the most efficient use of system resources when handling 3D files.

Better still, we're offering license packs for network users so you can set up your network configurations more cost-effectively. All of which makes Lotus 1-2-3 for Windows the best deal in a Windows spreadsheet.

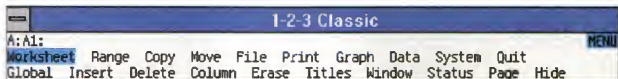


It's a better transition from DOS to Windows.

Only 1-2-3 for Windows, with its built-in Classic® Menu, lets you use familiar 1-2-3

commands whenever you choose. Excel, on the other

Corporate Computing (8/92) wrote that "for the experienced 1-2-3 database



hand, only supports 80% of 1-2-3 Release 2.01 commands. And has no support for releases beyond.

What's more, only 1-2-3 for Windows offers you a better compatibility bridge from DOS to Windows. And unlike Excel, which can't read Allways files, 1-2-3 can read and execute *any* 1-2-3 for DOS file, style and macro.

All of which means you'll retain your full investment in 1-2-3 for DOS files when you move to 1-2-3 for Windows.

Its 3D technology and external data access capabilities are better than Excel's.

In 3D technology, 1-2-3 is unsurpassed. It gives you easy access to 256 worksheets and lets you build true 3D formulas. Excel's Workbook is a mere imitation. That makes 1-2-3 for Windows a more powerful tool that truly helps you consolidate data, spot trends and make better, more timely business decisions.

user, 1-2-3 for Windows with DataLens[®] is the front-end tool of choice." Excel's data access capabilities rely on a third-party product with limited relational capabilities.

There's no better time to act than now.



Remember, for a limited time only, when you upgrade to 1-2-3 for Windows, we'll give you a SmartPics Clip-art Sampler absolutely free. It includes over 100 clip-art images to help you better communicate through your spreadsheet; it'll do the same with any Windows application.



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So if you're ready to take advantage of this great upgrade offer, just see your Lotus[®] Authorized Reseller or call **1-800-TRADEUP, ext. 7178.****

Lotus

1-2-3 for Windows

Act

(Continued)

BCIM

(Continued)

PowerLeads

(Continued)

DOCUMENT CREATION

Act includes a remarkably robust, built-in word processor that even provides a spelling checker, style sheets, and other advanced features. And, of course, you have access to any fonts you've installed under Windows.

The DOS version of Act featured an integrated word processor. In DOS, this was a definite advantage, but it is less so in the Windows version. Windows users are more likely to expect to access their more powerful stand-alone word processors. Unfortunately, while Act does allow you to shell out to external Windows word processors to create documents, it isn't as smooth or powerful in doing so as several of its competitors are. More importantly, if you use an external word processor, Act will not log the documents into contact histories.

If you have a fax board, you can fax documents as easily as print them from the print menu. And you can even queue faxes for later transmission.

Score: Satisfactory.

BCIM provides an internal word processor, but it is a very weak one. In fact, the built-in word processor offers virtually no features beyond the capability to enter text and set margins. It lacks, for example, search and replace and a spelling checker, and you can't even access fonts you may have installed separately under Windows.

BCIM does allow you to launch an external word processor for writing documents. But the program does not offer even Act's limited integration with the outside word processor. The only way to get a contact's name and address into a document, for example, is to use the clipboard before launching the word processor and then pasting the information in. BCIM automatically adds the salutation and current date.

What's more, documents you create and print either in the built-in word processor or in an external application will not be logged into client histories. You can access the history from the icon bar as you complete your document in the built-in word processor.

BCIM does not offer any direct support for faxes.

Score: Satisfactory.

PERFORMANCE: REPORTING

Act for Windows provides nine predefined report formats, including a contact report, phone list, history list of contact activities, address directory, task list, and so on. You can modify these templates, create new custom report templates, and save new entries on the Report menu.

There are predefined reports for printing your schedules; these templates cannot be modified. And Act does print in any personal data book format.

The program also provides templates for printing a wide variety of mailing labels, envelopes, and rotary index cards. **Score: Very Good.**

Reporting is clearly one of BCIM's strong suits. Comma-delimited ASCII files can be created for performing mail merges in your external word processor. In addition, the program also provides preformatted reports for printing your schedule, client records, and histories, each with or without notes.

The main weakness of these reports is that you cannot modify their formats, either in layout or in character formatting.

But BCIM also includes a separate program — Books, Cards, and Labels — as an option on the Reporting menu. Books, Cards, and Labels offers a variety of special report formats for printing mailing labels, Rolodex-type cards, and names and addresses in popular Daytimer formats. And Books, Cards, and Labels — unlike the regular reports — offers access to any fonts you installed under Windows. **Score: Good.**

PERFORMANCE: FILE MANAGEMENT

The program will import and export delimited ASCII and dBase files. You can also merge Act databases; the program automatically checks for duplicate records. It intelligently merges the notes and history information as well. **Score: Very Good.**

BCIM is quite basic in its file management capabilities. While it can import and export delimited ASCII files, the program cannot handle dBase files, nor is it capable of merging two databases. **Score: Satisfactory.**

Like SuperOffice, PowerLeads relies exclusively on external Windows word processors for document creation, a strategy that, thanks to strong integration, works well.

PowerLeads supplies standard letter style sheets and also lets you create your own. The program allows you to perform mail merges, during which you can insert fields in the body of a letter.

After you've written the letter and returned to PowerLeads, the program enters a date-and-time stamp in the notepad with the comment that a letter was sent and asks if you'd like to enter any comments. The note does not record the file name of the letter sent.

PowerLeads doesn't quite catch SuperOffice in this category, as it provides fewer style sheets and doesn't offer an archiving feature to track documents.

Score: Good.

PowerLeads provides a wide variety of report formats, including contact detail reports sorted 14 different ways — alphabetically by last name or company, by last call date or next call date, by priority, etc.

There are four types of expense reports — monthly, quarterly, year-to-date, and those sorted by client. And there are separate reports for your daily planner (though not in Daytimer formats). You can print preformatted reports of telephone and fax numbers, as well as Avery labels.

You can also generate custom user-defined reports that will include any combination of fields, though the process is a complex one and not for the technically fainthearted. **Score: Very Good.**

Importing and exporting data is no problem with PowerLeads, as the program supports not only delimited ASCII but can also import Excel, dBase, and Superbase formats and export ASCII, Excel, dBase, and Lotus 1-2-3 formats.

PowerLeads also recognizes its own format, so you can quickly and easily merge two databases, with the program checking for duplicates.

Finally, PowerLeads offers a unique database locking feature for those who want to protect a database while taking a downloaded version on the road. By using the Offline command, you can make the database read-only until you issue the command to bring it back online. **Score: Very Good.**

PERFORMANCE: OTHER FEATURES

Act for Windows allows you to launch out to other Windows applications. And you can password protect your databases. You can also create macros and assign them to icons. The program is available in European, British, Australian/New Zealand, Canadian, and Latin American versions. These versions differ in phone and postal field labels and formats, as well as in the inclusion of foreign language spell checkers.

Score: Good.

BCIM provides a built-in utility for downloading your database information directly to any of five palmtop computers. The supported models are the Hewlett-Packard 95LX, Atari Portfolio, Sharp Wizard, Casio Boss, and Poquet PC. **Score: Satisfactory.**

PowerLeads offers an expense-tracking module. When you want to enter an expense, PowerLeads offers a form with fields to enter a wide variety of expense information. The current date appears automatically, though you can change it. PowerLeads provides four different report formats for printing expenses.

Pyramid Data designed PowerLeads with modularity in mind. The company will offer a variety of add-in modules. The first add-in, PowerFields, adds 32 user-definable fields to PowerLeads. Other add-ins will bring document imaging and fax management capabilities, real estate management, and Caller ID. And, if you have Superbase — the Windows database package in which PowerLeads was created — you can construct your own add-in modules. **Score: Good.**

SuperOffice (continued)

DOCUMENT CREATION

At first it may seem strange that a program that doesn't provide a word processor should rate highly in document creation, but such is the case with SuperOffice. The reason lies in the program's exceptional integration with external Windows word processors.

SuperOffice uses Dynamic Data Exchange to send contact data directly to your Windows word processor for insertion into letters. The program even provides several preformatted style sheets—two for letters and two for faxes—and allows you to create and save more.

You can also archive documents, and SuperOffice will keep track of the date the document was written, to whom it was addressed, the subject and the author, and which style sheet was used. Any document you create will automatically be entered into the contact history of the address.

Of course, SuperOffice's reliance on tight integration with external word processors means that you can have access to all the power of the top-end programs without sacrificing contact tracking. **Score: Very Good.**

REPORTING

SuperOffice offers a wide variety of report formats. The reports are somewhat confusingly divided into four categories. The Customers/Business/Categories report lists all of your contacts with breakdowns displaying how many contacts fall in different categories. The Customer Lists/Mailing Lists option leads you through selecting records and creating a mail-merge list for use in a word processor, mailing labels, and a phone list. The Follow-up report displays details of activities attached to customer records. The Sales report provides a listing of sales broken down by company.

Its record-selecting capability for reports is powerful, but SuperOffice gives users virtually no control over which records are selected. You cannot specify layouts or character formatting unless you print the report to a file. SuperOffice is integrated with Excel macros that let you manipulate report files. **Score: Good.**

FILE MANAGEMENT

You can export and import comma- and tab-delimited ASCII files and files that contain custom-separated fields. SuperOffice not only allows you to merge two databases but also makes it easy. When you download a database from the network to a portable computer, for example, SuperOffice tags the file to record that it was downloaded. Then, when you log back into SuperOffice, it will ask whether you want to upload the previously downloaded file, and it will automatically sort out duplicates and add new or modified entries.

You cannot, however, merge SmartOffice data from another installation except by importing it as delimited ASCII data.

A new consistency-check utility gets rid of incomplete or blank records that crop up in the process of merging. **Score: Very Good.**

OTHER FEATURES

SuperOffice provides network compatibility with Novell, Artisoft, and Banyan networks, as well as record locking and concurrent access to databases. All data, except for Diary items, are placed in a common database. SuperOffice does not allow you to create private areas for either contact or scheduling information. The program offers password protection for database access and lets a network administrator set up private password-protected directories for individuals' correspondence.

SuperOffice provides icons for linking out to any of several applications. If you have an inventory or accounting program, you can attach it to the Orders or Accounts icons on the main menu. Other icons provide access to external programs and E-mail.

The sales-tracking module lets you keep a running total of sales to each contact and running totals for each employee making those sales. **Score: Very Good.**

See SUPEROFFICE, page 71



SUMMARY / from page 65

Summarizing the results

inclusion of several organizer functions among its report formats, as well as for being the only other program to offer rotary index-card formats.

But the main factor that distinguishes the products from one another in this category is customizability. Both Act and PowerLeads allow the user to generate custom reports and receive high scores accordingly. BCIM and SuperOffice, though they both provide strong sets of report formats, do not give the user the power to customize.

FILE MANAGEMENT:

Act, PowerLeads, and SuperOffice earn high scores in this straightforward category. You can import and export not only ASCII files but dBase files as well. Act and PowerLeads also make merging separate databases easy. And while SuperOffice can't do that, it earns extra points for its slick procedure for merging back in a previously downloaded data file.

Disk-Count Software limits BCIM's import and export capabilities to ASCII files; BCIM does not allow you to merge data files.

OTHER FEATURES:

If it's extras you're looking for, SuperOffice has the most to offer. The biggest extra is, of course, the program's network capabilities. Also, the program has a very handy module for tracking and reporting users' sales.

PowerLeads also deserves mention for its inclusion of an expense-tracking feature and for its open modular design, which portends future add-in modules.

DOCUMENTATION:

Act's documentation stands out for its thoroughness and clean writing. The only notable problems with the program's manuals are in the area of indexing. And Act's on-line help is easily the most complete and accessible of any of the programs'.

Both SuperOffice and PowerLeads provide adequate manuals, though SuperOffice's is not well indexed and PowerLeads' manual lacks an index altogether. As for on-line help, PowerLeads' help is too skimpy, whereas SuperOffice fails to provide any on-line help at all.

BCIM's documentation and on-line help are both in serious need of attention.

EASE OF LEARNING:

Act and PowerLeads are decidedly easier to learn than the other programs, thanks to their straightforward

interfaces and the well-designed introductory sections of their manuals.

SuperOffice is tougher to learn because it employs an unusual interface and lacks on-line help and tutorials to ease users into it.

BCIM's interface is quite simple, but the program's lack of good documentation makes the learning period longer than it should be.

EASE OF USE:

For all their differences in the other categories, these programs are remarkably similar when it comes to ease of use.

While general design features account for the high ease of use, certain features stand out for each program. Act's macros, lookup tables, and search catalogs deserve special mention. PowerLeads employs lookup tables just as effectively as Act, and its reliance on a single view of the contact record also contributes to its ease of use. Customizable lookup tables are also a high-light of SuperOffice, as is the program's nearly seamless integration with outside applications.

BCIM also rates well, but maintenance problems and the awkwardness of certain dialog boxes prevents the program from attaining a higher score.

SUPPORT POLICIES:

Contact Software and Pyramid Data both offer support policies that are a cut above those offered by the competition.

TECHNICAL SUPPORT:

Pyramid Data provides the best support of the bunch. The company is small, and our questions about PowerLeads were answered by highly qualified staff on demand. SuperOffice also provided us with quality support.

VALUE:

It's a fairly close contest, but the overall winner in this category is PowerLeads, thanks to a features set that rivals that of Act and a price of only \$295.

Each of the other products has features that recommend it strongly to certain users. Despite its high price tag of \$495, Act offers the most customizability and the strongest scheduling and searching capabilities of any program. If you need a network-compatible program, SuperOffice is the package of choice, and it is priced reasonably at \$395. Finally, BCIM offers the lowest price tag, with a list price of only \$99.

Act

BCIM

PowerLeads

DOCUMENTATION

Contact International has provided very thorough documentation for Act for Windows: a users' guide, reference manual, and slim getting-started manual.

Explanations in the manuals are clearly written and liberally illustrated. Act's on-line help is thorough.

Indexing and organization could be a bit more complete. The users' guide, for example, doesn't list any references to sorting or queries. The reference manual is organized alphabetically, without a table of contents or an index; it makes it difficult for users to know or find entries in the appendices. **Score: Very Good.**

BCIM's documentation is in dire need of attention. The manual's explanations are generally clearly written, but the booklet is so poorly designed and laid out that it is difficult to read and to find answers. Nor does it help that the manual doesn't even include an index. The table of contents is very brief and is buried some 20 pages back from the front cover of the manual.

The on-line help is equally terse and, though it is context sensitive, you cannot search for topics or browse an index. **Score: Poor.**

The manual's explanations of PowerLeads' features are generally adequate, though on occasion they tend to digress and get too chatty. What's more, the manual doesn't fully cover some topics, such as how to create a custom style sheet for mail-merge documents.

The program does provide on-line help, though it is not context sensitive and is frequently too terse to be of real help. **Score: Satisfactory.**

EASE OF LEARNING

Act is quite easy to learn. The manual's tutorial sections, combined with the tutorial database, provide a useful introduction, and most users should be comfortable with the program within an hour or so. **Score: Very Good.**

Because of BCIM's overall simplicity, new users will be able to master BCIM in only a few hours. But it still takes longer than it should to learn what is, after all, a relatively simple feature set. **Score: Satisfactory.**

PowerLeads is relatively easy to learn. There are, in fact, only two hurdles. First, the documentation could be more complete. Second, custom reports are relatively difficult to create, and the module could be better designed to lead users through the process. **Score: Good.**

EASE OF USE

Act for Windows generally earns high marks for its ease of use, thanks to effective design. The program's macros allow users to automate almost any command procedure. Act's lookup tables make data entry painless, and the capability to add search arguments and custom formats directly to the program's menus adds to ease of use.

However, Act takes a half-hearted approach to record customization. The program allows you to define and modify nearly all its fields, though it doesn't allow you to change field lengths or rearrange layouts. The program also relies on Windows default fonts for display, and if these change, text may appear truncated.

Also, you can enter data only in the fields displayed, so if you want to enter a full set of data, you'll have to switch between views to access all fields.

Act doesn't automatically save changes you make to a record. Instead, whenever you attempt to issue a different command, the program asks whether you want to save changes. Automatically saving changes would make operation considerably easier and would lessen the likelihood of data loss in the event of a power outage. **Score: Good.**

BCIM is so straightforward that it cannot help but rate well in ease of use. The problems we encountered were, for the most part, minor ones. For example, instead of having a button to move quickly from the Calendar to the Client screen, you have to pull down the File menu.

While adding a schedule item is simple from the client screen — just select the Schedule button and the form pops up with the current client's information already entered — if you are in the Calendar screen viewing your entire schedule, and you want to add an item, it gets more complicated. First the program prompts you for a client code and client name. If you can't remember the name or get it wrong, the program tells you it can't find the name and offers a list of contacts to choose from. **Score: Satisfactory.**

Despite its powerful search tools, strong scheduling capabilities, and variety of reports — features that generally add to a program's complexity — PowerLeads is surprisingly easy to use. The credit goes to the program's model of sticking to a single primary data view and calling up other data over that primary view. The user will be hard-pressed to get lost in this program.

Other design features, most notably the program's intelligent use of lookup tables for simplifying data entry and ensuring against mistakes, also deserve notice.

An obvious opportunity for enhancing PowerLeads' ease of use is in the way the program employs screen space. The program could easily fit twice as much information on-screen. And though PowerLeads supplies handy scrollable lookup tables for many functions, it displays only three increments of dates, times, or durations at a time.

Some users will also find PowerLeads' practice of mixing call and document histories with notes distracting. Finally, and perhaps most importantly, the lack of true user-definable fields and controls over their layout prevents PowerLeads from attaining a higher score in this category. **Score: Good.**

SUPPORT POLICIES

Contact Software offers free, unlimited support from 7 a.m. to 7 p.m. Central time, Monday through Friday. It offers support via fax and CompuServe, as well as a fax-back service. It offers a 30-day money-back guarantee. **Score: Good.**

Disk-Count Software provides unlimited telephone support (not toll free) from 8 a.m. to 5 p.m. Central time, Monday through Friday. Support is also available via fax and on CompuServe. **Score: Good.**

Pyramid Data offers 90-day free (but not toll-free) support after registration, from 9 a.m. to 5 p.m. Pacific time, Monday through Friday. You must pay extra for continued support. There is also BBS and fax support. **Score: Satisfactory.**

TECHNICAL SUPPORT

Contact Software International tortures users with hold times of over 30 minutes, accept questions via fax and voice mail; getting a call back can take as long as two days. **Score: Satisfactory.**

Disk-Count's support staff was quite knowledgeable. However, we were never able to reach technical support staff directly but had to leave a message and wait for a return call. **Score: Satisfactory.**

We were able to reach Pyramid Data's technical support without delay and found the staff to be very knowledgeable about the product and eager to help. **Score: Very Good.**

VALUE

Act for Windows is both the most full-featured and the most expensive of the contact managers reviewed in this product comparison. At \$495, Act costs \$100 more than the next-highest priced program, SuperOffice.

Act offers a generally stronger set of tools than SuperOffice but is currently available only in a single-user version; SuperOffice is fully network capable. And SuperOffice offers stronger document-creation capabilities as well, due to its seamless integration with stand-alone word processors. **Score: Very Good.**

At \$99.95 list, BCIM is probably priced just about right for its most likely market: individuals who are looking for a low-end contact manager that's relatively easy to use, if somewhat lacking in features. And such users will find that the program offers surprisingly strong reporting capabilities for the price.

Those who need network capabilities, however, or those who require automatic histories of phone calls and letters will want to select one of the more powerful and more expensive packages. **Score: Good.**

True, PowerLeads' interface isn't quite as slick as Act's, but PowerLeads' price tag of \$295 also undercuts Act's price by \$200. There is also a \$149 competitive upgrade available for an indefinite period of time.

The program is easy to learn, easy to use, and provides excellent searching tools and a generous selection of reporting formats. Its scheduling tools, though not its schedule views, come close to matching those found in Act, and its handling of documents is better than Act's. **Score: Very Good.**

Company: Contact Software International, in Carrollton, Texas, can be reached at (800) 365-0600 or (214) 484-4349; fax: (214) 919-9760.

Company: Disk-Count Software, in St. Paul, Minn., can be reached at (612) 633-0730.

Company: Pyramid Data, based in San Mateo, Calif., can be reached at (800) 972-7972; fax: (415) 312-9374.

SuperOffice

(Continued)

DOCUMENTATION

SuperOffice's users' manual is well written and suitably illustrated. Each section covering a major program module begins with a well-designed tutorial for familiarizing new users. The manual could, however, use a better index. Some common terms do not appear, such as "merge" or "mail merge."

SuperOffice did not update the manual for Version 2.5. Instead, users must resort to an addendum manual when they can't find the answer in the main manual.

Finally, the program lacks on-line help.

Score: Satisfactory.

EASE OF LEARNING

SuperOffice is the most challenging of the programs reviewed here. It takes good use of icons for one-click access to many of its functions and modules, but some of these are not particularly self-explanatory (e.g., the Dollar and Follow-up modules). There is also no on-line help or on-line tutorial. **Score: Satisfactory.**

EASE OF USE

Once you've learned the way SuperOffice goes about its business, the program is very easy to use.

SuperOffice's customizable lookup tables are noteworthy, because they both make data entry faster and easier and at the same time guard against typing errors. Like Act, SuperOffice provides lookup tables for scheduling operations as well as for contact records.

SuperOffice also scores high marks for its integration with other applications and most particularly for its use of outside Windows word processors. Users gain word processing power by being able to access, for example, Word for Windows without having to lose SuperOffice's style sheets, mail merge, and automatic recording of letters in contact histories. And not having to remember a built-in word processor's command set certainly adds to ease of use.

There is, however, still room for improvement. A weekly view of appointments, for example, would add greatly to the ease of keeping on top of one's schedule, as would alarms and drag-and-drop rescheduling. And more customizability of record formats would make it easier for users to place and retrieve exactly the information they need. **Score: Very Good.**

SUPPORT POLICIES

SuperOffice provides unlimited free support (not toll free) from 9 a.m. to 5:30 p.m. Eastern time, Monday through Friday. The company offers fax support and a 90-day warranty on disks and product upgrades.

Score: Satisfactory.

TECHNICAL SUPPORT

SuperOffice was quick to respond to our calls, and the staff was knowledgeable and professional in providing answers to our questions. **Score: Good.**

VALUE

At \$395, SuperOffice represents an attractive and less-expensive alternative to Act for Windows. SuperOffice can't quite match Act's feature set, particularly in terms of customizability of records, searching, and scheduling features. But SuperOffice offers tighter integration with outside applications. And for those who want to track employees' sales to clients, this package represents a very strong value.

You can extend SuperOffice, at extra cost, to multiple users on a network. Alternatively, if you aren't sure you need the program's full power, a pared-down version is available for only \$119. **Score: Good.**

Company: SuperOffice, in Lexington, Mass., can be reached at (800) 328-6868 or (617) 674-1101; fax: (617) 674-2970.

But that's not all...

The four packages reviewed in this comparison aren't the only programs available to Windows users for tracking contacts. Maximizer began shipping a Windows version too late for inclusion here, but we will review it in an upcoming issue. Maximizer for Windows offers strong competition for Act and PowerLeads. The program sets a new standard in customizability by allowing the user to create and define an unlimited number of fields in the contact record.

Maximizer's interface is clunkier than Act's because all of its modules—except the calendar—have the same databaselike appearance. And Maximizer's import and export capabilities can't quite match those of Act; the program can't handle dBase files, nor can it merge databases or perform mass updates of records.

But in just about every other feature category, from scheduling to reporting, from contact histories to automatic fax support, Maximizer looks like it will give Act a run for its money. Perhaps more importantly, at only \$249 list, Maximizer will make less of a run for your money.

Another latecomer to the Windows arena is Action

Plus—also one of the major DOS contact managers. The Windows version is expected to ship before year end.

And if you like what you see in SuperOffice but



Customizable Maximizer for Windows offers strong competition for Act and PowerLeads.

don't need the program's network capabilities, you might want to consider SuperOffice Light. This new package from SuperOffice Corp. provides single users with nearly all of the functionality of the regular SuperOffice for only \$119.

Finally, if you're willing to look outside the traditional category of contact managers, there are a host of personal information managers to choose from.

REPORT CARD

Windows contact managers

					
Criterion	(weighting)	Act Version 1.01	BCM Version 1.1	PowerLeads Version 1.02	SuperOffice Version 2.5
Performance					
Record management	(100)	Very Good	Satisfactory	Good	Good
Searching	(100)	Excellent	Good	Excellent	Good
Scheduling and telephone	(100)	Very Good	Poor	Good	Poor
Document creation	(75)	Satisfactory	Satisfactory	Good	Very Good
Reporting	(75)	Very Good	Good	Very Good	Good
File management	(50)	Very Good	Satisfactory	Very Good	Very Good
Other features	(25)	Good	Satisfactory	Good	Very Good
Documentation	(50)	Very Good	Poor	Satisfactory	Satisfactory
Ease of learning	(100)	Very Good	Satisfactory	Good	Satisfactory
Ease of use	(125)	Good	Satisfactory	Good	Very Good
Support					
Support policies	(50)	Good	Good	Satisfactory	Satisfactory
Technical support	(50)	Satisfactory	Satisfactory	Very Good	Good
Value	(100)	Very Good	Good	Very Good	Good
Final score		7.1	5.0	6.8	5.9

GUIDE TO REPORT CARD SCORES

InfoWorld reviews only finished, production versions of products, never beta test versions.

Products receive ratings ranging from unacceptable to excellent in various categories. Scores are derived by multiplying the weighting (in parentheses) of each criterion by its rating, where:

Excellent = 1.0 - Outstanding in all areas.

Very Good = 0.75 - Meets all essential criteria and offers significant advantages.

Good = 0.625 - Meets essential criteria and includes some special features.

Satisfactory = 0.5 - Meets essential criteria.

Poor = 0.25 - Falls short in essential areas.

Unacceptable or N/A = 0.0 - Fails to meet minimum standards or lacks this feature.

Scores are summed, divided by 100, and rounded down to one decimal place to yield the final score out of a maximum possible score of 10 (plus bonus). Products rated within 0.2 points of one another differ little. Weightings represent average relative importance to InfoWorld readers involved in purchasing and using that product category. You can customize the report card to your company's needs by using your own weightings to calculate the final score.

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REVIEWS

CADKey eases drawing with layout mode

Version 5.02 improves programmability and editing tools, but attributes are still weak

BY CAROLINE HALLIDAY REVIEW BOARD

Not a great deal has changed about CADKey 386 since we last looked at this mechanical engineering CAD package with a unique three-dimensional drawing environment. (We reviewed Version 4.0 in our April 22, 1991, product comparison of high-end CAD software.)

However, Version 5.02 of CADKey adds one significant new feature, several minor additions and enhancements,

and a programming interface that might attract more third-party development, all for the same list price as before, \$3,495.

CADKey 386 also comes in several Unix flavors. There is no longer a 286-specific version of CADKey that has the same features as CADKey 386.

We tested CADKey with the same equipment platforms and scoring criteria that were used in the April 22 comparison.

FEATURES:

Though you can obtain two-dimensional views of a drawing, you are always working in a three-dimensional coordinate environment in CADKey. Unlike most CAD programs, CADKey has a true 3-D database.

The best new feature in this version of CADKey is the drawing layout mode, a natural and powerful extension to CADKey's 3-D model mode.

Drawing layout separates 3-D and drawing details, making it easier to generate multiple views of the same model for output. (CADKey's model and drawing layout modes are approximately equivalent to AutoCAD's model and paper space, respectively.) As before, you draw your model in 3-D space. However, now you can use the layout mode to turn your 3-D work into a 2-D production drawing for printing or plotting.

Layout mode lets you arrange up to 200 views (called instances) of a single model and add details, such as borders, notes, dimensions, and crosshatching.

For example, you might place four instances — top, front, right, and isometric view — of your model. You pick your view, predefined or customized, from a list in a way similar to changing views of your model while drawing. Tools, such as align and rotate, make it fast and easy to precisely manipulate instances.

Though you cannot edit your original model from layout mode, CADKey maintains associativity between the instances and your model. For example, if you change back to model mode and alter your model, any dimensions that you added in layout mode will be automatically updated. If you prefer, you can alter an instance while you are in layout mode, but this makes a unique drawing and breaks the associativity between the model and layout.

CADKey's new programming interface, CDE, allows third-party developers to create applications in C and link them directly into CADKey as menu options. CDE gives programmers a great deal of flexibility in adding features to the base program that will run just as fast.

It's not documented, and it didn't



Enhanced rendering features in CADKey Solids, now integrated into CADKey, let you position a light source as well as adjust shades.

come with our evaluation copy (we had to request it), but this version of CADKey includes a disk of display drivers from Vibrant Graphics. Licensing these drivers should allow CADKey to quickly take advantage of high resolution and new graphics adapters.

Our test computer, for example, which includes a common VGA adapter, was not completely compatible with the older standard IBM VGA driver when running CADKey and required the Vibrant Graphics VGA driver.

Other enhancements to Version 5 are relatively minor additions to drawing and editing tools. For example, you can now dimension chamfers, and radial

The new Bent radial dimension option, drawn with a zig-zag leader line, will dimension arcs and circles whose centers are off screen. If you prefer, new options allow circles and arcs to have horizontal, vertical, or angled dimensions with two witness lines and arrows, rather than radial dimensions with a single leader line. Another new dimensioning tool measures chamfers.

CADKey now comes with additional crosshatching patterns, and you have more flexibility in defining your dimension arrowheads. Splines can now have up to 200 nodes.

Although improved, CADKey's drawing tools still lack a rectangular array

You can use the layout mode to turn your 3-D work into a 2-D production drawing for printing or plotting.

dimensioning is improved.

The new Undo commands help ameliorate operator errors, and quick trim requires only one cursor selection to fillet and trim.

PERFORMANCE:

Drawing tools: Dimensioning tools, particularly those for radial dimensioning, are improved in this version.

You can add radius and diameter dimensions to circles or arcs created in any view. (Previously, you could add only radial dimensioning to arcs and circles in the current view.)

command, and you can only add attributes to groups and not individual entities. We continue to rate drawing tools very good.

Editing tools: Editing tools show the biggest improvement. The drawing layout and model modes differentiate between creating your model and laying it out for printing or plotting.

If you prefer, you can continue to use CADKey's model mode exclusively and do the detail work as in previous versions. For example, dimensions still only appear in the view in which you created them.

The new Undo command will undo your last command or operation. The Recall command, added in the last version, is an undelete command that recalls deleted entities by layer, type, or

REPORT CARD

INFO
WORLD

HIGH-END CAD SOFTWARE

CADKey 386

VERSION 5.02

Criteria	(weighting)	Score
Performance		
Drawing tools	(50)	Very Good
Editing tools	(50)	Very Good
Placement tools	(50)	Very Good
Programmability	(50)	Excellent
Input/output capabilities	(50)	Good
Speed	(50)	Satisfactory
3-D features	(50)	Very Good
Networkability	(50)	Good
Attribute capabilities	(50)	Poor
Documentation	(100)	Good
Ease of learning	(125)	Good
Ease of use	(150)	Good
Support		
Support policies	(50)	Poor
Technical support	(50)	Satisfactory
Value	(75)	Good
Final score		5.1

PRODUCT SUMMARY

Company: CADKey, in Windsor, Conn., can be reached at (203) 298-8888.

List price: \$3,495.

Requires: Intel 80386 or compatible with math coprocessor; 4 megabytes of RAM (6 megabytes for large part files); DOS 3.1 or later; 10 megabytes of hard disk space; graphics adapter card and monitor; RAM disk, plotter, printer, and digitizer or mouse recommended.

Pros: Tailored to mechanical drafting; natural three-dimensional drawing environment; extensive programmable features.

Cons: Weak attribute capabilities; hardware lock.

Summary: CADKey remains a substantive product but does not include all the extras found in Microstation and AutoCAD.

INSIDE REVIEWS

CA-Cricket Paint for Windows, Version 1.0 75

in reverse order of deletion.

The quick trim and quick fillet options make filleting and trimming corners fast. You select the Trim or Fillet command, pick quick trim to turn it on, and then pick the side of the corner you want to keep. CADKey automatically trims or fillets the corner.

CADKey's editing tools are better than ever, but they still are not as extensive as AutoCAD's or MicroStation PC's. (CADKey lacks the other two's selection set capabilities for filtering, for instance.) We continue to rate CADKey's editing tools very good.

Placement tools: CADKey's strong suite of placement tools has not changed much. CADKey includes all the standard tools, such as various snapping options and drawing units. The new layout mode includes some alignment and positioning tools that help place drawing instances accurately.

We rate placement tools very good.

Programmability: The new CDE allows CADKey to seamlessly link with applications developed by third parties. CADKey Solids, for example, once a separate component, is now a CDE application that you can run from CADKey menus.

CDE is comparable to AutoCAD's ADS interface in that it supplements rather than replaces the existing programmable features. You can, for example, still save keystroke sequences and build more complex macros or create CADL (CADKey's proprietary programming language) applications. The new CDE interface has more functionality than AutoCAD, however, and makes better use of memory. Typical end-users may initially prefer to use CADL or CDE to create applications, but they will be interested in using third-party applications created using the two programming options.

We rate CADKey's programmability excellent.

Input/output capabilities: The addition of Vibrant Graphics display drivers is a valuable addition to CADKey 5.02. Assuming that Vibrant Graphics is able to supply additional display drivers for new display boards as they become available, you will be able to take advantage of new graphics modes much faster than before. Previously, CADKey supported standard display boards but was not very responsive to newer technology.

The Vibrant Graphics drivers are incorporated into the CADKey executable file, so you no longer have to load a separate display driver. Replacing the supplied CADKey standard VGA driver with the Vibrant Graphics equivalent removed a serious compatibility problem we experienced during testing.

CADKey's utility for translating between DXF and CADL is still not documented except on disk and supports only AutoCAD/Release 11 files.

The DXF and CADL files have extra attribute features are unchanged; you still cannot import or export attributes as part of the standard program features. We continue to rate input/output good.

Speed: This version of CADKey was approximately as fast at creating an array (still a two-step process in CADKey) and regenerating and redrawing the screen. It was much faster at printing the array and at saving the drawing. However, plotting was slower. We rate speed satisfactory.

3-D features: Although a 3-D wireframe modeling program by design,

CADKey separates its solid modeling features from the 2-D drawing features. They are, however, more integrated than before. CADKey Solids, previously a separate program, is now a CDE program that you can start from the menu within CADKey. Still, transferring data between CADKey and CADKey Solids involves preparatory steps you must perform in strict sequence.

Once in CADKey Solids, you can do hidden line removal, as well as shading. You can work with converted wireframe models or create new models from solid primitives, such as sphere and torus. The new version adds dialog boxes and a color coding scheme to highlight model errors. You can define multiple frames within a single model, and you can display a list of your groups and Boolean equations. Enhanced rendering features let you position a light source as well as adjust shades for your model.

The improvements make CADKey Solids more approachable than ever. However, the rendering features still lack a little behind other high-end CAD programs. We continue to rate 3-D features very good.

Networkability: CADKey has not made any changes to its networking features since the last time we reviewed it. You can view, print, and plot another user's file. You can also load an open file, edit it, and save it under another name; this allows you to use a drawing someone else has open, but protects the integrity of the drawing by preventing two people from making changes to it simultaneously. Networkability continues to rate a score of good.

Attribute capabilities: CADKey's attribute features were not upgraded for this version. You can add attributes only to groups (and not individual objects), and only by using a CADL function. Each

Since our last review of CADKey, other packages have steadily improved in areas in which CADKey still falls down, such as attributes. The value of CADKey's CDE will depend on third-party response.

group is limited to 10 fields up to 60 characters each. We rate attribute capabilities poor.

DOCUMENTATION:

The documentation is completely rewritten in CADKey 5.02. The writing is much tighter and the organization follows the menu order rather than mixing menu sequence sections with alphabetical subsections, as in the previous manuals.

Unfortunately, the reorganization eliminated some orientation information, such as a flow chart of menus and in some cases lists of command options at the beginning of a section. You must rely heavily on the index. For example, the introduction section for the polyline command does not list that command's five subcommands, each of which have their own options.

The new getting-started manual is also disappointing in some ways. It includes so much configuration information that many beginners will dismiss it as an installation manual and may miss important concepts (such as CADKey being a

BENCHMARKS

High-end CAD software

TIMES IN MINUTES/SECONDS

	CADKey 386 Version 5.02	CADKey 386 Version 4	AutoCAD ¹ Release 12	VersaCAD386 ² Version 7.0
Create array	00:11 ³	00:10 ⁴	00:39	00:26
Regenerate array	00:07	00:08	00:44	00:30
Redraw array	00:06	00:06	00:06	00:20
Print array	06:34	09:49	05:56	12:47
Plot array	37:10	32:59	25:15	34:12
Plot one cell	01:07	00:40	00:55	01:02
Save array	00:05	00:30	00:09	00:43

¹Test bed: 25-MHz 386-based system with an 80387 math coprocessor. 8 megabytes of RAM, and a MicroScan 120 megabyte AT standard hard disk; Hewlett-Packard LaserJet Series I printer; Houston Instruments DWP-51 printer.

²Time does not include separate steps required to generate array.

³Reviewed August 31, Page 56.

⁴Reviewed November 9, Page 99.

three-dimensional drawing program). The new layout mode information is well documented at the start of the reference manual.

On the bright side, the CADKey Solids manual, which used to be practically unusable, has improved dramatically. The CADL and CDE manuals, which many users do not need, are available on request. We raise our score for documentation to good.

EASE OF LEARNING:

In general, the user interface in Version 5.02 has not changed; it remains consistent and relatively easy to learn. The shortcut commands, clear settings, and status information are practical and helpful.

Flaws in the new documentation make

answer questions left on CompuServe but offers no other form of free support. You can purchase an annual maintenance contract (including upgrades) for \$695. Technical support alone is \$200 annually.

You must rely on your dealer for all other support. If for some reason your dealer is unavailable, CADKey will try to find a replacement dealer for you. Because the vendor provides no free telephone support, we rate support policies poor.

Technical support: We tested CADKey's paid technical support using an anonymous maintenance contract number. Though the technicians seemed knowledgeable about PCs and product installation, it took three phone calls to isolate our trouble (a problem with our display device driver manifested itself as a disk drive error) and two more to get running again.

The last person with whom we spoke described himself as a second-tier technician who served as a backup when the first-tier technicians could not solve a problem. We rate technical support satisfactory.

VALUE:

CADKey 386 lists for \$3,495. There is no special network pricing, other than site licensing packages you may be able to arrange with your dealer.

A reliable, full-featured 3-D program with particularly fine drawing and editing tools, CADKey is fairly fast and has a consistent user interface that makes it reasonably easy to learn.

CADKey's new layout mode eases drawing layout, and improvements in documentation and integration make CADKey Solids a practical part of the product.

However, since our last review of CADKey, other packages (such as AutoCAD) have steadily improved in areas in which CADKey still falls down, such as attributes. The value of CADKey's CDE programming interface will depend on third-party-company response.

We continue to rate CADKey's value good.

Caroline Halliday is an electrical engineer with High Tech Aid, a Pittsburgh-based company specializing in technical documentation for PCs. Her recent books include PC Secrets and First Book of Norton Desktop for Windows.

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Cricket Paint has unique image creation approach

Includes high-end features, but you will need CA-Cricket Image to fill out capabilities

BY PATRICK MARSHALL
CONTRIBUTING EDITOR

CA-Cricket Paint from Computer Associates International Inc. is an odd bird. The application provides some very high-end painting features, such as textured canvases and cloning tools that create mirror images. However, Cricket Paint does have some weaknesses that may be overcome with the additional purchase of CA-Cricket Image, a separate \$295 program that has features that Cricket Paint lacks, such as scanner drivers and the capability to produce color separations. (For a Test Drive of Cricket Image, see July 20, page 104.) This presents users with an awkward choice rather than an all-in-one solution. Cricket Image is significantly slower, especially dealing with larger images, than the competition; and although the user has the option of purchasing the packages bundled together, they are still completely separate and nonintegrated packages, although both

products are made for Windows.

We review Cricket Paint based on our image creation and editing report card because of its creation and raster-based editing capabilities. We used criteria developed for our last image editing and creation product comparison (August 10, page 51).

Cricket Paint has a unique implementation of features. For example, although most programs allow you to apply only the hue or brightness of a color to an image with the brush settings, Cricket Paint does this through the masks. And although Cricket Paint lacks the fifty color-mold selection spectrums that other programs provide, it does offer a unique "quad ramp" that lets you mix colors by dragging and dropping from its 256-color palette.

Similarly, Cricket Paint has a unique "Unpaint" option that lets you selectively remove changes from the current paint operation. However, it lacks the eraser found in most painting programs.

Although Cricket Paint's uniqueness makes it easier to use for certain kinds of tasks, especially those involving complicated cloning operations and special texture effects, most users will find it less adept at performing most common painting and editing tasks than Micrograph Picture Publisher or Aldus Photo-styler, for example.

FEATURES:

Cricket Paint works on a fundamentally different model than the majority of PC image editing programs. Nearly all painting and editing functions are accessed through three on-screen panels: Tool, Shape, and Source. The Tool panel lets you select from about a dozen tools. You can select a brush or air brush, for example, and set its edge and opacity. The Shape panel is used to pick not the shape of the tool, but the type of shape you're going to work with on the screen — a freehand selection, an ellipse, or rectangle, and so on.

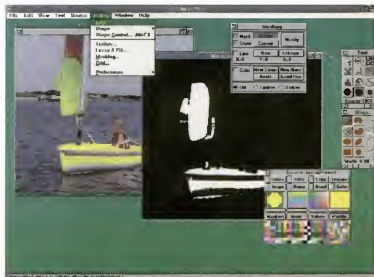
The Source panel is by far the most complex of the three. This panel is used to select the effect you're going to apply to the image with the tool. This one panel combines color selection, filter selection, masking, gradient fills, and cloning adjustments all in one.

All three panels, as well as any others you may call up from the pull-down menus, are completely floatable, so you can arrange your work space just as you like. And Cricket Paint makes good use of the right mouse button to let you banish all the tool panels with a single click and enable you to bring them back just as easily.

PERFORMANCE:

Image editing tools: Cricket Paint provides the full set of basic selection tools: rectangle/square, ellipse/circle, polyline, freehand, and a magic wand (which is called a "lasso").

Cricket's masks are quite powerful and take on an unusual burden. Unlike most image editors, Cricket Paint uses masks rather than the paint tool to determine whether a paint tool applies only the hue, brightness, or other quali-



Cricket Paint, like its competitor, Picture Publisher, uses masks to apply protection to specific colors and hues in an image.

ty of the selected color. And, like Picture Publisher, Cricket Paint allows you to apply protection to specific colors and hues in an image.

Another difference is that Cricket Paint's masks are all applied in a separate mask layer. You can create an entire pattern of masks, the display of which you can toggle on or off, and you can save the mask layer for future use. You can also use standard brushes to create or modify the shapes in the mask layer, making the program more effective than others at mimicking traditional artists' use of masks: only the paint applied inside, around, or through the mask — depending on the mask settings — will actually be applied to the image.

There are a few significant limitations to Cricket's masking capabilities: You can't select the intersection of two masks, and adding to or subtracting from a mask cannot be done in a straightforward fashion, though there are work-arounds.

And although you can expand a mask in one-pixel increments, you can't edit its borders by dragging, as Picture Publisher allows.

Cricket Paint is relatively limited in its 106 embedded filter effects, including special embossing and "barrel shift" effects. Unfortunately, you cannot create your own user-defined filters, nor does the program accommodate third-party filters.

Cricket is also somewhat weak in color correction, depending on Cricket Image to fill the gaps. With Paint, you can adjust the hue and saturation of images or selections, as well as the brightness contrast, and you can switch color planes in an image — substituting all the greens for all the red values, for example — but the program doesn't offer a color map for interactively fine-tuning individual color channels. Image, however, does offer such capabilities, including color correction or adjusting of response curves.

Cricket Paint's reliance on another program for relatively basic editing

capabilities prevents it from scoring as highly in this category as its masking features might otherwise deserve. We rate basic editing tools satisfactory.

Paint and draw tools: Cricket Paint offers most, though not all, of the expected kit of painting tools. There is, for example, no eraser for removing colors to expose the background color, though the program does provide a unique Unpaint option that allows you to selectively remove "wet" paint that has been applied during the current operation.

You can adjust brushes for feathered edges and opacity, and you can change brush shapes simply by using the selection tools to define any shape you like, then adjusting the size of the brush to achieve the effect you're after. You can even use the lasso to select a shape from the image and make that the brush shape. You can also adjust the program to paint only a chosen hue or brightness value, or to paint only over lighter or darker areas, though this setting is made through the masking tool rather than the brush tool.

Instead of providing a separate smudge tool, Cricket Paint lets you select smudge instead of a color in the Source panel. The program will then smudge with whatever brush shape you have active. You can smudge solid colors or tints, and you can use the same technique to apply any filter effect.

Two features in particular set Cricket Paint's painting tools apart from the competition: textures and cloning.

Using the Texture dialog box, you can adjust a variety of characteristics of the way you apply paint. With the Dots option, you can add graininess to the applied paint, and with the Sandy option you can randomly mix the color of pixels to achieve a sandy texture. Using the Glaze option allows you to mix the applied color with the underlying colors. You can also extract textures from existing images and apply them to new canvases. This control over texture gives Cricket Paint the capability to mimic

REPORT CARD INFO WORLD

IMAGE CREATION AND EDITING SOFTWARE

CA-Cricket Paint for Windows

VERSION 1.0

Criterion (Weighting)	Score
Performance	
Image editing tools (200)	Satisfactory
Paint and draw tools (100)	Very Good
Import and export (100)	Poor
Speed (75)	Poor
Documentation (100)	Very Good
Ease of learning (100)	Satisfactory
Ease of use (125)	Satisfactory
Support	
Support policies (50)	Satisfactory
Technical support (50)	Good
Value (100)	Satisfactory
Final score	5.1

PRODUCT SUMMARY

Company: Computer Associates International, Inc. (Darien, N.Y., can be reached at (800) 314 DAI, (800) CALL CAI, or (516) 342-5224.
List price: \$595.

Requirements: IBM PCAT, PS/2 or compatible (386 recommended); Windows 3.0 or later; mouse or other pointing device.
Pros: Strong cloning and masking tools; Wacom drawing tablet support.

Cons: No scanner drivers or color separations; difficult to learn; relatively slow. **Summary:** Cricket Paint offers some nifty masking and painting tools, but the program's nonintuitive design makes it tough to learn and relatively complicated to use. The program's slow speeds will rule it out for users who need to handle large images.

natural media similarly to, but not as extensively as, Fractal Painter.

Cricket's clone tool is also quite powerful. You can, of course, adjust opacity while cloning in the standard fashion. But you can also create mirror clones, with the features of the cloned image reversed. Further, you can rescale or rotate an image during cloning and even change the perspective.

Cricket's utilities for selecting colors are certainly adequate, though not stellar. You can select colors in two color models, RGB and HSB, but Cricket Paint doesn't provide the usual visual spectrums. Instead, you select using slider bars or entering numbers.

Cricket Paint's on-screen palette — attached to the Source panel — is relatively limited, showing a maximum of 256 swatches of color instead of a full spectrum. But the program offers a "quad ramp" window where you can mix colors by selectively dragging colors to the four corners of the window and choosing from the graduated mix of the combined colors in the center. There is also a vertical ramp and an eyedropper tool to grab color out of an existing picture.

Finally, Cricket Paint supports the Wacom pressure tablet, which allows you to adjust a color's opacity by the amount of pressure you apply to the pressure stylus. Unlike Picture Publisher, however, Cricket Paint does not allow you to control the width of the brush stroke with pressure. We rate paint and draw tools very good.

Import and export: Cricket Paint is quite weak on getting images in and out of the program. There is no scanner support, and Paint only imports and exports a limited number of file formats: BMP, JPEG, and TIF. However, Paint's implementation of JPEG is not complete — we found that Cricket Paint couldn't open JPEG images from Picture Publisher, though Picture Publisher has no trouble opening Cricket Paint's. (Computer Associates is working on this problem.)

Cricket Paint lacks utilities for generating color separations or for performing high-end prepress adjustments, such as setting screen frequency and dot shape or performing gray-component replacement. Cricket Image does offer sophisticated prepress controls including undercolor removal, global halftoning, and the capability to produce positive and negative color separations.

Cricket Paint does not offer any means of calibrating your monitor, scanner, or printer. However, Cricket Paint offers more selections for how your monitor displays color reductions than any other program we've seen. The limited format support and lack of scanner drivers can paint a poor score in import and export.

Speed: Cricket Paint was an extremely slow performer in our benchmark tests. On average, the program takes three times as long as the competition to perform most common operations with our 500K test file. It is so slow with larger files that it is of questionable use.

In fact, Cricket Paint's slowness in dealing with our 5-megabyte TIFF file may justly scare away those users needing to handle large files. The program

very good.

EASE OF LEARNING:

Cricket Paint's overall design is far from intuitive and presents many hurdles to learning, especially when compared with other programs in this category. It is not immediately clear to the user how some of the program's most important features work, and finding out isn't particularly easy either.

The worst offenders in this regard are Cricket Paint's procedures for creating and altering masks and its Source panel for selecting the colors to apply.

Cricket Paint's saving grace in this category is its fine documentation. Even so, it will take those experienced with other image editors more than a day of solid study to get comfortable with just the

Cricket is also somewhat weak in color correction, depending on Cricket Image to fill the gaps. Paint doesn't offer a color map for fine-tuning individual color channels.

took fully 4 minutes and 19 seconds just to load the 5-megabyte file on our 386/33 test system, and it was prohibitively slow in scrolling the image. We rate speed poor.

DOCUMENTATION:

Cricket Paint's manuals are polished and offer loads of illustrations. The explanations of features are generally lucid, although some of the program's trickier features, such as masking, are not successfully described.

The program comes with a useful techniques guide that leads the user through some basic operations, such as applying tints, creating a mask, and so on. And the guide also explains how to create special effects, such as mimicking watercolors and oil paints.

The documentation is nicely rounded out with a getting-started guide and a useful quick-reference card.

Cricket Paint provides adequate on-line help, though it is not context sensitive.

Finally, Cricket Paint provides status messages that give a description of each tool and menu selection as you pass the cursor over it. We rate documentation

basic features of the program. We rate ease of learning satisfactory.

EASE OF USE:

Cricket Paint makes some operations that are difficult in other programs surprisingly easy. Particularly worthy of mention are Cricket Paint's duplicate view, which lets you work on a zoom of the image simultaneously with your original, the mirror and perspective features of the clone tool, the quad ramp for mixing colors; and the program's nifty procedure for creating new brush shapes.

At the same time, however, Cricket Paint does not pay adequate attention to the basic ease-of-use features that are relatively common in other programs. To select a zoom factor, for example, you must use the Views/Preferences box instead of selecting from the Zoom tool. When you zoom in, Cricket Paint creates a new Window with the zoomed view. To zoom out, you select View/Overview, which creates yet another Window. This leads to a cluttered workspace before long.

Similarly, Cricket Paint makes you run around like setting brush attributes. To adjust feathering, for example, you must select the Setting/Edge menu, while the opacity is selected from the Tool panel, and the shape and size of the brush is chosen from the Shape panel. And, of course, if you want to paint only blue, you need to create a mask. To make matters worse, Cricket Paint does not provide any scratch pads for testing tool effects, nor is there a quick preview to check brightness/contrast adjustments before you apply them.

In fact, the procedure for applying a simple filter effect to selected areas is extraordinarily difficult in Cricket Paint. Where other programs would have you simply make the selection by clicking the magic wand in the desired area, then applying a brightness filter, Cricket does things differently. First you select Filter, then Brightness in the Source panel to make brightness the quality you're painting with. Then you select the area tool in the Tool panel before you choose the lasso in the Shape panel. Finally, assuming you've set the lasso sensitivity

correctly, when you draw the lasso around the area you want to select, Cricket Paint will paint the brightness onto the area. It's the same operation, but Cricket Paint's method involves more steps on the user's part and is conceptually more difficult.

Cricket Paint also has performance limitations that compromise ease of use. Just about every time we tried applying a filter effect, the program paused to warn us that it wouldn't be able to undo the effect and ask if we wanted to continue. You can adjust the size of the buffer, but you have to manually edit the program's INI file. The buffer should, however, be set as a default such that a simple filter operation can be undone.

Finally, we found that the program was unable to display the full palette of colors when running one of our TIGA-based video cards in 24-bit mode, though no other image programs have the same trouble. And Cricket Paint ran perfectly on another system with a TIGA board. We rate ease of use satisfactory.

SUPPORT:

Support policies: Computer Associates provides free, but not toll free, technical support for 180 days from 6 a.m. to 5 p.m. Monday through Friday, Pacific time. There is also fax support and support purchase options after 180 days. We rate support policies satisfactory.

Technical support: We were able to reach technical support regularly with only moderate delays. The support staff was generally knowledgeable and able to answer our questions fairly promptly, only occasionally putting us on hold to investigate. Technical support is good.

VALUE:

Most users will find Cricket Paint a questionable value when compared with the competition. The program's \$595 price tag is \$100 more than that of Picture Publisher, a program that is generally more powerful — including scanning — and has a much wider range of prepress tools — and is far easier to use. To have access to scanner drivers and color separations, users must purchase Cricket Image, which costs another \$295; Computer Associates is selling the two programs bundled together for \$695.

However, Cricket Paint's value does have a special offer: Until January 31, 1993, in which the list price of CA-Cricket Paint and CA-Cricket Image is just \$92 per program.

Of course, Cricket Paint can do certain special textured brush effects that Picture Publisher can't manage. But Cricket Paint isn't nearly as strong in that regard as Fractal Painter.

Cricket Paint is positioned — in features and price — between Fractal Painter and programs such as Picture Publisher. The choice facing users who need special brush and paper effects is whether they're better off buying Picture Publisher or Fractal Painter, with a summed list price of \$894, or Cricket Paint and Cricket Image, with a summed list price of \$695.

Most users will find the former a better value, especially when considering Cricket Paint's excruciatingly slow speeds. On balance, we rate Cricket Paint a satisfactory value.

Patrick Marshall has 10 years of experience using and writing about a wide variety of hardware and software, including image products.

BENCHMARKS

Image creation and editing software

	CA-Cricket Paint Version 1.0	Adobe Photoshop Version 2.0.1 ¹	Micrografx Picture Publisher Version 3.1 ¹
500K file			
Open image	00:12	00:05	00:03
Apply 20% brightness filter	00:17	00:03	00:13
Save file in native format	00:03	00:05	00:05
Scroll 200% image top to bottom	00:27	00:08	00:06
Zoom image from 100% to 200%	00:10	00:03	00:04
5-megabyte file			
Open image	04:19	00:28	01:21
Save file in native format	01:53	00:41	01:03

Times in minutes/seconds; lower numbers indicate better performance.

Speed scores are based on our setup. Time could change if setup was optimized for a particular software package.

¹Reviewed August 15, page 51.

THE LAW.

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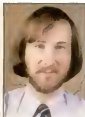
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Buyers Advisory / Brett Glass

SmartDrive's default setting delays writing file changes to disk

Each of the major applications we run requires a different set of CONFIG.SYS and AUTOEXEC.BAT files to run optimally. A consultant, who no longer works for us, created a batch file that changes these files and then reboots

the system with the proper configuration for each program. We tried installing Windows 3.1 on one machine and discovered that the system could no longer change its configuration; we had to restore from a backup tape before we could resume work. Why would installing Windows cause this to happen?

Carole McFee

A You've unwittingly stumbled across a problem that's quite common among new Windows users. When Windows 3.1 installs itself, it adds the latest version of SmartDrive to your system without warning you or giving you a chance to say you would not like the cache installed. Unfortunately, SmartDrive in its default configuration is a "write-back"

cache — that is, it delays writes to the disk in an attempt to combine them with other disk operations. If the system is rebooted by a typical reboot program during the delay period, any data that has not yet been written to the disk is irretrievably lost. This is what's happening in your system. The utility is attempting to change AUTOEXEC.BAT and CONFIG.SYS, but the new versions of the files are never being written to the disk.

Luckily, there's an easy fix that takes only a few seconds to apply. Open the batch file that reconfigures your system with any text editor (DOS' Edit program will do nicely) and add the command SMARTDRV /C just after the lines that modify the system's configuration files. This command forces SmartDrive to write all pending information to the disk and will guarantee that AUTOEXEC.BAT and CONFIG.SYS are updated before the system reboots.

In your column, you often recommend programs that can be downloaded from on-line services or computer bulletin boards. However, we're a government contractor, and our management guards against security breaches, corporate espionage, and computer viruses by forbidding employees to dial out with modems. Is there another way to obtain a large collection of utilities — hopefully tested for viruses?

Janice Roper

A One of the best ways to obtain a large collection of freely redistributable software is to buy it on CD ROM. These discs — originally intended for owners of computer bulletin boards — contain gigabytes of compressed files and are painstakingly checked for viruses. If your organization has a network CD ROM server or is willing to set one up, such a disc is a "must-have" item and will pay for itself hundreds of times over in saved downloading costs. Shareware collections are available from nearly every purveyor of CD ROMs, and one company, GroupWare of Tacoma, Wash. ((800) 373-0628), has at least six collections to choose from. If your employees use shareware programs from the disc, remember to register the products for the correct number of users and/or obtain a site license.

Besides keeping your company legal, registering shareware will encourage the creation of new and improved products.

Q We on-the-road software demonstrations with a Gateway 4205XL notebook and need to attach a frame grabber to capture images from a Canon XapShot camera. How can we do this?

Michael Mitchell

A Canon's FV-540 Video Floppy Disk Archive reads XapShot disks and can connect via a Tranor parallel-to-SCSI adapter. (It also works with the Mac and Next.) You can buy an expansion chassis from Axonix ((800) 866-9797) and plug a frame grabber card into that.

Contributing Editor Brett Glass answers reader questions on technical issues in this weekly column. Brett cannot answer questions personally. Readers can leave questions by calling (800) 227-8365, Ext. 702 or via CompuServe (72267,3673).



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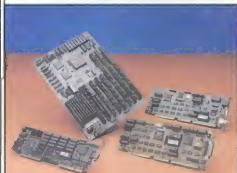
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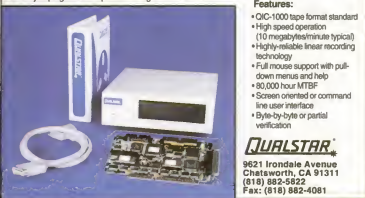
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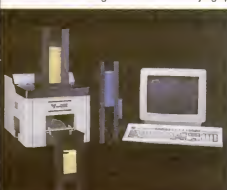
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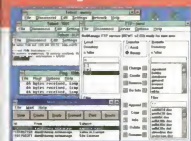
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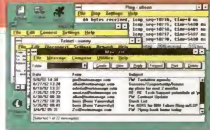
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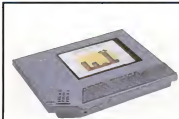
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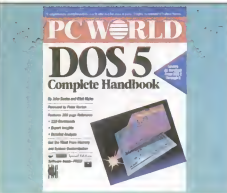


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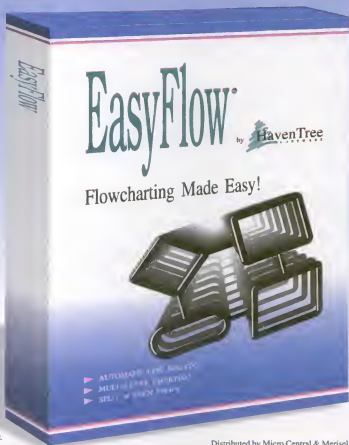
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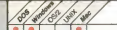
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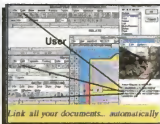
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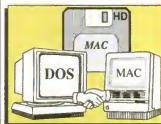
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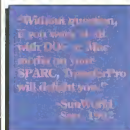
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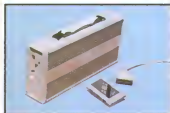
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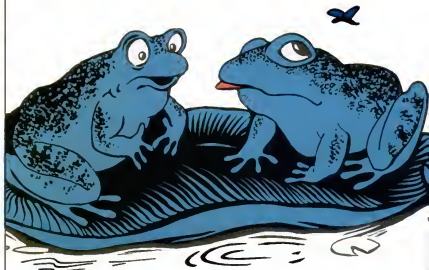
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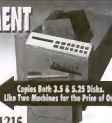
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10:15 Telecom I: Toll Fraud IBM's Approach LAN HW/SW Defense
Richard L. Linton, NYU IBM's Vance, IBM Padgett Paterson, North/McKetta
12:00 (Buffet and restaurant Luncheon Provided)
1:00 Risk Assessment Panel MAC Attacks Disinfecting LAN Server
Susan Kieckhefer & Irene Gilbert, NIST, Jane Paradise, Apple Harold Highland, Comput
2:30 Encryption, RSA, OS2 UNIX Security LAN Policy and Disaster
William Muray, Deloitte Tom Duff, Bell Labs Kenneth van Wyk, CERT/CMU
4:00 Transborder: EC, Law What's Wrong With AntiVirus Products and Testing?
Eli Okamoto, JAIST Greg Drusow, Fredrik Skulason, Alan Solomon, Peter Tippet
6:00 Empire State Building Observatory "MEET THE EXPERTS" Sit-Down Reception

3/12 Friday:

9:00 Publicly Available Help Tekkies: In-Depth Session Intrusion Detect/Prevent
Klaus Borchert, U. Hamburg Fred Cohen, ASP Don Parker, SRI
11:00 MAC II & DEC Attacks UNIX Security II Computer Crime Law, FBI
Eugene Spafford (N) Purdue Karl Levitt, U.C. Davis J.J. Bloombecker, (N)
1:30 "ET TU, HACKER?" THE GREAT DEBATE: 9 experts, sometimes heated views
including Robert Schiffreen, who cracked U.K. Queen's Husband's E-Mailbox & tells how to stop him
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3:15 WAN/Warfare/Telecom II New Research and Ideas Recent CompCrime Cases
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EDITORIAL INDEX

Network Applications	
Untouchable Network NLM.....	3
Z-Mail 2.1.....	31
DEC E-Mail Module	
for WordPerfect 5.2 for Windows.....	31
Relay Gold LAN 5.0.....	31
Metaphor DIS Gateway.....	31
Views 2.0.....	31
WordPerfect for Windows.....	31
Futurus Phonebase.....	35

Network Hardware

NetSpan Disk Array.....	24
AA9180 Disk Array.....	34

Network Management

Paradigm.....	31
ISMS Management Software.....	31
Hub Service Manager.....	31
Lan Admin.....	35

Peripherals

Viewsonic 7 Monitor.....	24
Elographics TouchMonitors.....	24
NiScan 8-Bit Scanner.....	24
SuperX Accelerator VGA Board.....	24

Printers

Lexmark IBM 4029	
LaserPrinter.....	16
DEC LA310 MultiPrinter.....	16
Seiko SmartLabel Printer P0.....	16
Kyocera Ecosys eS FS-3500A	
Network Printer.....	28
Star LS-5 Laser Printer.....	28
DEC's DeCaser1152	
Network Printer.....	28

Productivity

LabTech Vision.....	15
PenCell Spreadsheet for	
Windows Pen Computing.....	15
Lotus 1-2-3 for Windows,	
Release 2.0.....	15
Federal Soapbox.....	16
Act Version 1.01.....	59-71
BCIM Version 1.1.....	59-71
PowerLeds Version 1.02.....	59-71
SuperOffice Version 2.5.....	59-71
CADkey 386 Version 5.02.....	72-73
CAD-Cricket Paint for Windows.....	75

Systems

Minibook Notebook Computer.....	24
Leading Edge 386SL Subnotebook.....	24
Leading Edge 486SL Notebook.....	24
AST 486SL Notebook.....	24
Zenith Z-Lite 320L Notebook.....	28
Packard Bell Minotower System.....	28

Tools

TrueEffects for Windows.....	24
Que's Electronic Computer	
User's Dictionary.....	15
MyAdvancedBackup.....	15
OLE Version 2.0.....	15
Object Basic.....	15
SQL Server for DIS.....	15
Red Brick Warehouse for DIS.....	15
Grid Pen Essentials.....	16
AlceWin 3.0.....	16
PicturePress 2.5.....	16
PicturePress Plus.....	16
PowerBookDOS Companion.....	24

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UPCOMING IN INFOWORLD

Mapping Software

December 7, 1992
With the addition of powerful database and presentation capabilities, computer cartography has become a tool in marketing, resource management, urban planning, and a host of other applications. *InfoWorld* evaluates several leading mapping packages for Windows, including Atlas GIS, MapInfo for Windows, and Tactician. We'll assess ease of map creation and editing, presentation and analytic capabilities, and speed of map regeneration and query processing.

Product Reviews

December 14, 1992
This issue of *InfoWorld* features an extensive selection of product reviews: thorough, objective, timely evaluations of the most important new products in hardware, software, and networking. All based on research conducted in the renowned *InfoWorld* Test Center, and written by our Reviews and Testing team and members of our independent Review Board.

FAX Servers

December 21, 1992
These hardware-software combinations let you send and receive faxes right from your desktop via your local area network. And that lets you share text, graphics, and data without making frequent trips to the printer and the fax machine. *InfoWorld* compares complete desktop fax solutions from Gammalink, Intel, OAZ, and Castelle, with an eye to ease of setup and use in accomplishing typical faxing tasks, feature sets, and technical support.

Notebook PCs

December 28, 1992/January 4, 1993
For the first time, *InfoWorld* conducts a "battle of the processors" in a report on 25-MHz 486SX (Intel-based) and 486SLC (Cyrix-based) notebooks PCs. Evaluating units from ALR, Grid, Texas Instruments, Toshiba, and Twinhead, we'll report not just on overall performance but also on those key attributes of a notebook PC: size, weight, and battery life.

Product Reviews

January 11, 1993
This issue of *InfoWorld* features an extensive selection of product reviews: thorough, objective, timely evaluations of the most important new products in hardware, software, and networking. All based on research conducted in the renowned *InfoWorld* Test Center, and written by our Reviews and Testing team and members of our independent Review Board.

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AD INDEX

AddStore.....	9
Apple.....	34-35,49
Compaq.....	13,26-27
Correl.....	53
Corporate Software.....	12
DCA.....	42
Dell Computers.....	37,77
Easel Corporation.....	29
Expersion.....	41
Fifth Generation.....	2
Gateway 2000.....	32-33
Haventree Software.....	85
IBM.....	5,44-45,60-61
Intel.....	50-51
Kingston.....	7
Lotus Development Corporation.....	10-11,30,66-67,74
Lotus Wordprocessing Division.....	47
Microsoft.....	17-21,23,25,54-55
Microsoft Press.....	6
Multi-Tech.....	78
National Education Training Group.....	57
NEC.....	58
Northgate.....	56
Practical Peripherals.....	36
Quarterdeck.....	99
Shiva.....	100
Software Spectrum.....	22
WordPerfect.....	14

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InfoWorld review product criterion. In addition, the Buyers Assurance Seal signifies that the product's manufacturer has signed a limited replacement or refund guarantee. Look for the Buyers Assurance Seal in *InfoWorld* reviews and product comparisons, and when you are shopping for PC products.

FTC / from page 1

Novell leads effort supporting case

toward Novell's DR DOS product — a competitor to Microsoft's DOS.

Microsoft officials acknowledged that Novell has been one of the more "active" participants in the FTC investigation.

Clashes between Microsoft and Novell have increased as the companies have become more involved in competitive product categories. Novell has had trouble getting hardware OEMs to bundle DR DOS. It had a tenuous relationship with Microsoft last year over the adaptation of DR DOS to work with then-unreleased Windows 3.1.

The two companies also have been at loggerheads in recent weeks over Microsoft's bundling of the Novell NetWare client

software with Windows for Workgroups (WFW) 3.1.

Further disagreements are expected to arise early next year over Microsoft's inclusion of its LAN Manager network functions within future operating systems. For example, Microsoft is scheduled to release Windows NT with built-in LAN Manager capabilities, as well as Microsoft DOS 6.0 bundled with a Microsoft Mail client that works with WFW.

The acrimony between the two companies appeared to intensify at Comdex last week. Novell pulled out of Microsoft's Windows booth at the last minute, a move which puzzled Microsoft officials.

In the case of WFW, Novell contends that Microsoft is not licensed to distribute the NetWare requester with a Windows networking bundle and is reportedly considering a temporary restraining order to halt distribution.

But Microsoft says its license states that it can package the requester with any



Microsoft is prepared to license a clone Novell client or write its own to bundle with WFW, said Mike Maples.

version of Windows 3.x, which includes WFW and Windows NT.

Microsoft is prepared to write its own Novell client or license one of the existing client clients currently on the market, said Mike Maples, Microsoft executive vice president of worldwide products.

Novell's legal moves resemble tactics used by long-distance carrier MCI during the federal government's antitrust case against AT&T in the '80s.

MCI's suit claimed AT&T restrained trade by limiting its access to local phone companies. The phone giant was subsequently broken up.

Ed Sennell and Vance McCarthy contributed to this story.



Bill Gates is feeling the heat these days as vendors press for fair treatment.

BUS / from page 1

Local bus replacing I/O bus design

erson said. "Eventually there won't be any need for a separate high-speed bus such as EISA or TurboChannel. It will all be done on the local bus."

As VESA's VL-bus is implemented today, it could be less suitable to replace full-fledged, high-speed buses such as EISA and TurboChannel. While it has the advantage of being available now, it supports only four peripherals on the local bus, whereas Intel's specification allows as many as 10.

PCI and the VESA local bus technologies speed graphics and other peripherals by placing them closer to the CPU, allow-

ing them to bypass the slow system bus and send data at near-CPU speeds.

"VESA's VL-bus is a good short-term solution," said J. Michael O'Dell, vice president of portable products for Dell Computer Corp. "But Intel's specification makes I/O for all peripherals make it a longer term solution. It's interesting that all the VL-bus supporters are board developers, and PCI is being supported by systems manufacturers."

At Comdex, both groups made announcements concerning their technology. VESA said it will upgrade its local bus

specification to increase bandwidth and support multimedia.

Intel announced it will ship a PCI chip set in March.

The PCI Special Interest Group announced four new members of its steering committee, including ATI Technologies Inc. and AMD Inc.

Last month the SIG announced that it will add a connector to the PCI specification that, like the VL-bus, will enable users to connect third-party boards to the local bus.

ATI announced that its mach32 graphics accelerator chip will support PCI in January, and NCR will ship a SCSI I/O processor for PCI in the second quarter.

Intel was not available for comment.

IS / from page 1

Closer ties with vendors key to '90s IS

for those cutbacks."

Travelers' experience echoes that of most of the companies involved in Taligent's "Top Corporate Innovators" study.

"We wanted the study to get a general overview of what technologies corporate users thought were important and how they are going to implement it," said Nancy Deyo, Taligent's director of market development. "It wasn't designed to be a Taligent-specific

study.

"Most of those companies are focusing on turning IS departments into a profit center rather than a cost center," Deyo said.

Tom Crowell, vice president in charge of developing international technology for consumer products giant Clorox, said most people don't think of his company as the kind that uses technology to make money. "I mean, what's the technology content in

a bottle of bleach?" Crowell said. "But the fact is that as our business changes, we're finding that technology is crucial to our ability to compete, particularly overseas as we broaden those markets."

But recognition that IS departments can contribute to the bottom line during an economic downturn is making it crucial that IS departments are able to implement leading-edge technologies without wasting money.

"It is something that about 50 percent of America's corporate CEOs are starting to

MOBILE / from page 1

Mobile computing big at Comdex

known participant.

The CPDP group showed its software on three mobile platforms: the IBM ThinkPad 700C notebook, an Apple Computer Inc. PowerBook Duo 210 laptop, and the smallest device of all, an Eo Personal Communicator 440, which contains a telephone handset.

The standard CPDP protocol software was running along with the necessary radio hardware to send and receive the data over the air.

The CPDP network infrastructure software to support mobile databases and mobile data gateways will be available in July from McCaw Cellular Communications Inc., which declined to reveal pricing.

AT&T said it will resell the Eo 440 Personal Communicator through AT&T Phone Center Stores as an AT&T branded product. To make it appealing to consumers, the company will

Pen Scheduler and Ink Development's InkWare NoteTaker, which are considered easier to use than similar applications bundled with the Eo version.

IBM demonstrated a similar device. (See story page 8.)

Motorola committed to shipping several wireless computer next year, including a 2.3-pound, 386SL-based machine, which will sport forms processing, database access, and messaging. It will run Windows for Pen Computing and have 20 megabytes of solid-state storage, expandable to 80.

Motorola also previewed the PocSec, a prototype of a \$350 pen-based organizer with built-in communications. The PocSec, or pocket Secretary, will sport a touch-sensitive graphic interface that handles address card files, memos, calendars, calculator, paging, home and local time, and remote data transfer.

PEN / from page 1

Pen OSes to offer direct NetWare link

a joint venture of IBM and Motorola Inc.

When the interfaces are complete, pen systems will be full participants on a NetWare LAN from across the room or across the country.

"We will extend NetWare access to all mobile platforms," said William Donahoe, director of marketing for Novell desktop, laptop and charge-up systems with Novell's mobile computing operations.

Currently, personal digital assistants such as Eo Corp.'s Personal Communicator and portable pen systems such as Grid's Convertible rely on E-mail gateways such as AT&T's EasyLink, to communicate with Novell and other LANs.

Making sure that PDAs can be full LAN clients or peers is essential for better remote access to data, said Lloyd Frink, Microsoft's group program manager for Windows for Pen Computing.

Microsoft will put the net-

work protocols of its Windows for Workgroup peer component and the LAN Manager client components in future pen versions of Windows.

For its part, Go will soon make available support for Ethernet in its operating system to allow the Communicator to be a NetWare client in the office, according to Jennifer Buff, Go's product manager for Go's PenPoint.

Grid has committed to include native support for NetWare as an option in its PenRight operating system, said Tameria Clark, business development manager.

Grid's pen systems can be NetWare clients, but only within 2,500 feet using LAN adapters from Proxim.

For all the commitments, vendors admit technical hurdles and high prices are working to keep data transmission and keep roaming NetWare client impractical for at least another year.

and hardware developers. However, that type of input "is usually way too late for us to have any meaningful input into shaping the program," Augstberger said.

"Beta programs are useful," Crowell said. "But the traditional way of working with companies to have input into the development process doesn't really give us any meaningful part in shaping applications."

"What we want are partnerships with developers early on in the process so that the technology helps us solve specific problems," Crowell said.

REVIEWS TEST DRIVES

DIAGNOSTIC UTILITY

WinSleuth Gold 3.0 tracks down every systems culprit

BY JEFF ANJOS REVIEW BOARD

The very software and hardware engineering advances that made diagnostic software necessary have also made it harder to design. When something doesn't work, it's hard to discern where the fault lies. Dariana Corp.'s WinSleuth Gold 3.0 is the only tool I've found that can take anything diverse computing environments dish out and report back.

The older WinSleuth Professional afflicted users with enough icons to sink a battleship. WinSleuth Gold 3.0 has only 10 main icons, each of which gives you access to a wide set of related functions.

Pressing the Video button gives a good example of the program's diagnostics. The basic screen, called Display Capabilities, offers detailed information about the Windows video device driver so you can ascertain whether problems are related to hardware or software.

The Hardware Info button launches a screen filled with details of the

screen's physical attributes, and the Benchmarks button gives a broad range of "performance" indicators. The Hardware Testing function pushes the video controller through a variety of different operating modes. The depth and balance of tests it offers makes WinSleuth Gold, listed priced at \$169, valuable for anyone responsible for managing systems that run Windows. The bundling of CO/Session remote control software enhances that value. The vendor also added WinRx, a virus detection software package, in the incremental 3.04 update version of WinSleuth Gold.

Dariana, in Cypress, Calif., can be reached at (800) 892-9950, (714) 236-1380; fax: (714) 236-1390.



WinSleuth Gold's 10 icons give you access to a variety of diagnostic tools.

ACCOUNTING SOFTWARE

DacEasy Instant Accounting has both Windows, DOS versions

BY ALAN FRAYER REVIEW BOARD

Windows may be in your future, but DOS is on your chest today — and every application you buy today is one more application you'll have to replace when you upgrade to Windows. If this is your concern, you might be particularly reluctant to buy an accounting application because the time it takes to feed it your data. You don't want to have to start over again when you switch to Windows.

DacEasy addresses that difficulty with DacEasy Instant Accounting. Not only is it extremely affordable, but DOS and Windows versions come in the same package. You can start with the DOS version and upgrade to the Windows version without missing a beat.

The DOS and Windows versions are similar in use as well as data compatible. The pro-

gram includes general ledger, accounts payable, accounts receivable, and inventory modules, plus a calculator. You can add accounts, customers, vendors, and products on the fly. You can create form letters to send to customers, and if you have a fax/modem you can fax those letters using numbers stored in the customer file. The modem can also work as an auto-dialer.

DacEasy's efforts to make the program simple to use fall a little short of the goal — only one module can be open at a time and DacEasy does not support Windows' TrueType fonts — but it is still much easier to grasp than the more complex larger packages. With its versatility and low price (\$49), DacEasy Instant Accounting is a good choice for small businesses.

DacEasy, based in Dallas, can be reached at (800) 322-3279.

First Look / Kevin Strehlo

Cyrus upgrade board enhances Intel 386DX chip by 50 percent

For around \$300 (less for volume orders), the Cyrus 486DRu2 upgrade board can improve the performance of many computer systems built around the 16- and 20-MHz versions of Intel's 386DX chip by almost 50 percent.

Cyrus called the upgrade boards we tested "preproduction," and the firm is rolling the upgrade out cautiously. You'll have to order in volumes of 3,000 units to get it now, although lower volume sales are expected to begin soon, and single-unit end-user sales may begin in the second quarter of 1993. Certainly the no-frills packaging and documentation make it clear that this is a product for technically sophisticated customers making volume buys.

Indeed, Cyrus currently requires that the purchaser have its own IS staff to handle the upgrade installation. Negotiations are under way with third-party service organizations to install and support it, but Cyrus has yet to provide details on which organizations or what the pricing might be. Moreover, Cyrus stresses that the upgrade may not fit in some systems, particularly on the 20-MHz version of the upgrade. To make sure, Cyrus will ship a sample unit before the deal is closed. In general, if a system's 386DX socket is not in plain view, but rather is hidden beneath a drive or other component, lack of clearance may be an insurmountable problem.

The 20-MHz upgrade is topped with a heat sink and requires roughly 1 1/2 inches of clearance. The 16/32, mini heat sink, is still in need of more than an inch of clearance. For example, we had a problem installing the daughterboard in the Compaq 386/20, in which the 386 socket sits underneath a drive bay. We had to remove the drive bay to make room for the Cyrus chip. Our sister publication, *PC World*, had no such problems with a Compaq 386/16, due in part to the lack of the heat sink on that slower upgrade processor.

In our work, we tried to install the upgrade on one other 386/20 system, a Northgate Slimline 320. We had no clearance problem with this machine. However, you should keep in mind that if your 386 processor sits in line with the expansion slots in your system and you install the Cyrus chip, you won't have room for a full-length expansion card.

Installing the upgrade is typical of other processor upgrades that require a daughterboard — that is, it is not as simple as the very clean OverDrive chip installation offered for most systems based on the Intel 486SX. On the other hand, installing the Cyrus 486DRu2 upgrade isn't more difficult than most board-level upgrades, because Cyrus support is available by phone. Finally, the third draft of the documentation is far better than the second draft we started with, and perhaps the fourth draft will be ready for prime time.

PROBLEMS OVERCOME. The main area of concern as we installed the upgrade was the 12-pin jumper block on the normal up to 16-pin Pin 1 of the upgrade chip with the corner of the socket marked with a notch on its inside edge is clearly documented. The series of steps you need to take with the jumper settings are not.

Indeed, we blame the problems we had with the installation on the pre-release nature of the part and the documentation. The daughterboard we received was configured for a PS/2 system,



rather than the expected AT-bus system, which caused us to believe we had received the board DOA. And the appropriate jumper settings were not documented.

Once we got a later iteration of the documentation with AT and EISA bus settings included, we were able to change a jumper setting and get the Compaq to boot. However, when we installed a Cyrus math coprocessor along with the daughterboard, the system failed to boot again, and the Cyrus 486DRu2 chip became very hot.

It was only in the troubleshooting section that our new documentation recommended an alternate jumper setting that worked fine.

WHY ONLY 50 PERCENT? Despite its label, the 486DRu2 chip isn't equivalent to an Intel 486. The Cyrus chip on this upgrade board gets much of its speed increase over the 386DX chip it replaces from clock-doubling circuitry and a 1K on-chip cache.

That speed increase is roughly 50 percent over the speed of the Compaq 16c and 20c we upgraded and on which we ran the BAPCO SYSmark. Given that none of the other subsystems changed, the raw processor performance improvement is somewhat better than 50 percent. On the other hand, the 16-MHz machine upgraded to a clock-doubled 32-MHz is roughly 50 percent slower than the typical SYSmark of a computer based on Intel's 25-MHz 486SX.

It's not surprising that the upgrade doesn't bring performance to the level of an Intel 486-based machine. For example, the Cyrus chip's 1K of on-board cache pales when compared to the 8K included on an Intel 486. Though the Cyrus chips have a built-in integer hardware multiplier, its main impact will be to improve the performance of the very oldest, poorest performing VGA boards.

That multiplier hardware certainly won't make up for the 486DRu2's lack of a math coprocessor when it comes to running complex spreadsheet functions and CAD/CAM applications. For that, you'll have to add a Cyrus math coprocessor, which will set you back another \$100 or so.

But perhaps the biggest failings of the Cyrus chip when you compare it to the Intel 486 — that it communicates with system memory at two times the chip's clock rate, rather than at the chip's clock rate as the 486 does, and that it uses a 16-bit interface to the outside world — don't matter when upgrading older machines, which haven't implemented things like local bus connections to take advantage of the extra free memory cycles the Intel 486 provides.

FAX IN THOSE ORDERS NOW. If you are a self-sufficient shop with thousands of machines built around socketed 16- or 20-MHz 386s, your chips are out where you can see them, and 50 percent performance improvement sounds good, fax a request to Mike Bruzzone at Cyrus ([214] 699-9857). Give one of the preproduction units a try and see if you really want to go through with the larger order.

Kevin Strehlo is Executive Editor, Testing & Reviews. First Look examines new products before they have been through a formal review.

Gupta takes on Goliaths with first Windows DBMS

While Microsoft Corp. and Borland International Inc. were parrying over the Windows database market with unreleased products, Umang Gupta was quietly selling the first Windows-based client/server tool, SQL Windows. The advantage of being first, in this case, is coupled with being followed by two successful marketing machines, which also lead language development. Little wonder, then, that the \$30 million Gupta dropped the "Technologies" from its name and has commenced an aggressive positioning campaign. InfoWorld's Editor-at-Large Scott Mace and Editor of Opinions Rachel Parker asked founder Gupta about his role as David to a pair of Goliaths.

InfoWorld: As Microsoft and Borland try to enter the Windows database market, you must feel somewhat threatened.

Gupta: We have a broader mission than simply providing a DBMS for the business market. Our mission is to downsize or rightsize the business market. To do that you need a full system solution for client/server: a database server that runs on PC networks, a set of tools, and extensive connectivity. Microsoft Access really impinges only on Quest, our personal programming tool.

InfoWorld: Yet, Microsoft positions FoxPro squarely in your market.

Gupta: FoxPro is a language-derivative product that has upsized itself to become a reasonably robust tool for programmers, typically, PC programmers. In fact, the programmers who are doing downsizing applications are ex-Cobol programmers, Ingres programmers, or

Informix programmers. They are sometimes bewildered using the dBase language to do the job.

InfoWorld: Don't Microsoft and Borland have an advantage in that they own languages, as well?

Gupta: Not at all. If you can build a very nice 4GL that avoids the use of C or something like that, and that has tight integration with SQL, you have a better chance of building a good tool for SQL developers.

Access to class libraries or languages is not a prerequisite to building good database tools.

InfoWorld: Where do you get your class libraries?

Gupta: SQL Windows is written all in C. But SQL Windows 4.0 offers complete object orientation. We have essentially built our own class libraries.

Now, there will be a portable SQL Windows — for Presentation Manager, NT, Unix next year. That will be created using C++.

InfoWorld: What kind of a time frame should we attach to a portable SQL Windows?

Gupta: You can expect to see versions of SQL Windows on OS/2 PM and NT next year. Those are essentially ports of our existing products.

We believe that in the 1994/1995 time frame, a number of our customers will be looking for tools — both programmer and end-user — that work on Unix, possibly UnixWare, the Mac, and in addition, OS/2, Windows, Cairo, and possi-



Umang Gupta
President and founder
Gupta Inc.
Menlo Park, Calif.
Age: 43

bly Taligent. To meet the needs of that world, we have started a version of Portable SQL Windows that will be built along a class-library concept. The portable version will be available in the 1994 time frame.

InfoWorld: While Microsoft and Borland are coming at you from the PC market, you've got competition coming from above as well. How do you compete with Oracle 7 or Sybase 10?

Gupta: Database servers are like cars: There are big cars and small cars. In my opinion there is a place for most of those offerings. To the extent that a customer has standardized on Oracle across the enterprise, then he may very well choose Oracle 7, say. SQL Windows shines when customers look for departmental database servers that work with its existing PCs and applications.

InfoWorld: How are you defining departmental?

Gupta: That is a fair point. Today, we see a department as 50 to 100 users on a server running at 50 to 100 transactions per second. Your hardware could continue to grow, but there are organizational limits on how much a department can grow. I think 100 users is about it.

InfoWorld: Client/server technology is coming, but from our experience, it isn't ready for prime time, yet.

Gupta: There are different types of client/server applications — departmental and enterprise applications. In my opinion, client/server at the departmental level works. The tools are all there.

To build an enterprise system, though, you need more than some good tools. You need infrastructure — connectivity, network management tools, resource management tools, management re-education, programmer training, and end-user re-education.

And, it requires a certain degree of confidence on the part of MIS managers who've used mainframes to do all of this. Client/server is not yet a well-proven concept for the enterprise. It will take a couple of years.

Notes From the Field / Robert X. Cringely

Microsoft is dealt a pair of crashes in its Access demo at Comdex

Noises from the casino faded into the background as Pammy got over her deeper into her latest passion: video poker. Comdex and PCs were forgotten in her single-minded quest for that royal straight flush. Little followed day, handsome men tried their best lines and were ignored. All that mattered was the cards flickering on-screen and the Visa credit limit.

"Don't you have another credit card, Bobby?" she asked.

DEMOPRO FOR WINDOWS. Amazingly, there is actually strategy of sorts involved in video poker. There are video-poker "professionals." Pammy is not one of these.

The first rule of professionalism in any game is to understand the rules. The kids from Microsoft must not have been aware of this when they twice crashed their Access database during a press event.

The problem turned out not to be Access at all, but the beta version of FoxPro for Windows that was demoed immediately before and refused to give back its Windows resources. The rule of giving demos is to reboot after running beta code.



Despite its problems during that demo, FoxPro for Windows is a sure bet to ship before dBase for Windows. dBase might not even make it to market in 1993.

Also beating Borland to the punch with a Windows database will be Word-Tech Systems' Arago, which is written from scratch for Windows (unlike FoxPro, which is good but still a DOS port) and is very impressive.

BILL GATES FOLDS. NOT! The intellectuals of video poker believe in winning

streaks and try to take advantage of this phenomenon by betting as little as possible when they are losing and as much as possible when they are winning. Now there's a concept on which to build a career.

In this spirit of limiting losses, a rumor swept the Comdex show floor that Microsoft had filed a plan with the FTC proposing rebuilding that old Chinese Wall between Systems and Applications in exchange for the Feds giving away. I can believe that some discussions have taken place but seriously doubt that Microsoft will take this route.

I HAVE SEEN THE FUTURE, AND DELETED IT. "Video poker is so intimate," said Pammy during a rare break in the action. "It's just the machine and me, with no dealers or other players involved."

"Like establishing a direct, one-way electronic link between your bank account and the casino's?"

Very funny, Bobby. Still, you can't win if you don't play, which makes me wonder why IBM canceled (not postponed — canceled) its upcoming strategy retreat for senior managers, where Big Blue was going to

come up with a new game plan.

And in Vegas, conflicted IBMers were showing a networked group calendar product (formerly a part of ARCS Vision) but would not acknowledge that the product actually existed.

They also showed a personal digital assistant but would not say what processor it used. (The demo unit had a wimpy C&T PC-on-a-chip set, but the real thing will use a RISC chip, probably the ARM processor also used in Apple's Newton.)

Another IBM-Apple similarity: Both companies will soon have video servers. (IBM's is a mainframe, and Apple's will use the PowerPC chip.)

"Time to go, kiddo," I said gently as Pammy dropped her last quarter (and mine) into the slot.

As the one who usually screws up, I relish these moments.

Then she hit the progressive jackpot, took home \$8,000, and dashed forever my dreams of moral superiority.

I am left, however, with immoral superiority. Join in by calling me with an industry secret at (415) 312-0555; fax: (415) 326-0326; MCH:CRINGE, or cringe@infoworld.com.

QEMM-386 v.6

The Power Behind the Best-running DOS and Windows Systems

From DOS 3.0 to Windows 3.1, QEMM is the best memory manager you can run.

Our new QEMM-386 version 6 is the best way to get the most out of memory. It 'pools' all your memory so that it's available in whatever form

your programs need—expanded or extended. You don't even need to know the difference. QEMM does it all for you.

Indeed. Whereas DOS 5, for example, requires you to figure out what you need, then manually allocate memory and re-boot every time you need to change.

As for the all-important 'conventional' memory area, our new QEMM-386 v6 increases the amount of memory freed-up. Our exclusive 'optimize' feature automatically seeks out TSRs, utilities and device drivers and moves them into high memory—the area between 640K and 1 megabyte. All you need to do is type 'OPTIMIZE'

"It's nothing less than a dream come true"
—Steve Gibson InfoWorld 3/26/91



our new feature to accommodate those TSRs that need more memory at start up and less when they're resident. Memory allocation is temporarily increased, then squeezed down after it's needed.

QEMM can use idle video memory to produce a further 96K gain on EGA and VGA systems when running character-based programs.

A priceless \$60 bonus.

QEMM comes with Quarterdeck Manifest, the award-winning analysis

program that shows what's going on 'under the hood' of your PC.

Manifest does for memory what Norton Utilities does for disks.



Big Windows benefits, too.

Whether you're running DOS 3, 4, 5, or Windows 3.0 or 3.1, QEMM can improve your 386/486's performance.

That means you may not need a faster CPU. You may not even need more RAM. QEMM makes your favorite programs work better by giving them more memory.

QEMM helps you get the most out of the software you own today.



QEMM-386 v6 finds more high memory than any other memory manager. Byte Magazine's tests showed it produced net memory gains of 21K to 132K over DOS 5.0 alone, for instance.

Stealth takes you to network and TSR heaven.

Our breakthrough 'Stealth' technology makes available areas normally taken up by ROM. Areas that QEMM-386 can use to load memory-hogging drivers and TSRs. Big programs can get the memory they need to run fast and efficiently. And you get to have your TSRs.

Not every PC can benefit from Stealth. But every PC can benefit from 'Squeeze'—

PC Week Ratings	All Other	Norton	QEMM	Stealth	QEMM	Memory
	386 3.2	2.10	2.0	386 3.2	2.1	2.1
Software	4	4	4	4	4	4
Hardware	4	4	4	4	4	4
Compatibility	4	4	4	4	4	4
Reliability	4	4	4	4	4	4
Ease of Use	4	4	4	4	4	4
Memory Manager	4	4	4	4	4	4
Flexibility	4	4	4	4	4	4
Quality of	4	4	4	4	4	4
Documentation	4	4	4	4	4	4

PC Week rated QEMM 6 the best memory manager.

Quarterdeck

Quarterdeck Office Systems, 150 Pico Boulevard, Santa Monica, CA 90405 (310) 392-9851 Fax (310) 314-4219
Quarterdeck International Ltd., B.I.M. House, Crofton Terrace, Dun Laoghaire Co. Dublin, Ireland Tel. (353) (1) 284-1444 Fax: (353) (1) 284-4380

©1992 Quarterdeck Office Systems. PC Week Analyst's Choice Logo. ©1991, Ziff Communications Company. PC Week is a registered trademark and the PC Week Analyst's choice logo is a trademark of the Ziff-Davis Publishing Company. Other trademarks are property of their respective owners. Risk to computer table: Software compatibility is defined as the product's ability to run without problems with the operating system PC Week Labs used in testing. MS-DOS 5.0, IBM PC DOS 5.0 and Microsoft Windows 3.1, and with a variety of application software, including Quarterdeck's QEMM 3.0, Norton Utilities 3.0 for DOS, WordPerfect 5.1 and Lotus 1-2-3. Hardware compatibility is defined as the product's ability to run on PC Week Labs test hardware platforms, which included a 386SX-based PC and a 286SX-based IBM PS/2 Model 70. Reliability ratings are based on the successful and dependable performance of each operating system and application software package under each memory manager. Ease of use is based on ease of installing and configuring each program, based on support for automatic loading features and the intuitive nature of the interface. Flexibility in managing memory is rated on the range and quality of the product's features in optimizing system performance and handling special-use installation. Quality of documentation is judged by the clarity, comprehensiveness and helpfulness of the documentation provided with the product, based on the organization of the manuals as well as the thoroughness of definitions, directions and explanations, and the inclusion of troubleshooting information.

Now it's easy to scale your remote networking efforts.

You'd never *plan* to use a multitude of dedicated PCs for remote networking. But chances are you've already started implementing that kind of configuration. Two, three, four PCs at a time—it adds up in time, money, and space.

Before you and your phone closet get completely out of control, consider LanRover™/E.

Get centralized management and top-level security.

The LanRover/E is a multi-port remote networking server for Ethernet that sits on your NetWare® network. It comes in 4- or 8-port models and can pack 100 lines into less than two vertical feet.

This is transparent access that you control. And you never have to leave your chair to manage all your ports. Shiva Net

Manager—Shiva's powerful configuration software—lets you manage and configure all your LanRover/Es from one desktop, using DOS or Windows™ over SNMP.

Set-up and management are a snap: save all your critical data in user and configuration files, and download them simultaneously across the network. Or configure your LanRover/Es separately.

You also get two formidable security options: LanRover's own multi-level set-up as well as the NetWare Bindery. It even supports third-party security systems.



**You could try
stuffing 50
remote-access
PCs into your
phone closet.**

**Or a few
Shiva
LanRover/Es.**



Shiva

The remote networking specialists

So whether you have four lines or 400, the LanRover/E makes management quick, convenient and secure.

The best way to get NetWare everywhere.

If you tend to be short of time and space, you owe it to yourself to check out the LanRover/E family of products for NetWare and AppleTalk® Remote Access. When you examine *all* the issues—performance, scalability, affordability, centralized management, security—it's the only remote networking solution that makes good business sense.

Find out how much you can save by remote networking the Shiva way. Call and ask for our free remote networking white paper. It's full of information you can use, starting now.

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